

Services firms ready for actions

by John Kavanagh
COMPUTING services companies are gearing up to face new consumer protection laws and taking action on board. A growing number of first-time users are going to court over system contracts, and all leading services companies now have full-time legal people working on contracts, litigation and software piracy.

The new rules come under the Supply of Goods and Services Act, which in July extends consumer protection from products - now covered by the Sale of Goods Act - to services. The Department of Trade says the fact that the provision of services will be covered by an Act of Parliament will make it far easier for consumers to take their grievances to court.

"This could have significant impact because at present disputes involve largely oral wordings of contracts," said Douglas Eycins, director-general of the Computing Services Association.

Bill Jacot, director of London-based consultancy DBA Computer Services, said despite these contracts users could find them-

selves unprotected. "Few first-time users bother to read their contracts, so suppliers naturally tend to word the contracts in their own favour," he said.

Eycins said the Act could help users buying turnkey systems. Legal people could argue that a turnkey system supplier was providing a service by adding software to some hardware, he said. "They could argue that the product - the hardware - was working as it should. But this Act will now also cover the software part."

Leading software firms, including Logica and Seicon, confirmed that they had taken on or expanded their legal departments in the last year.

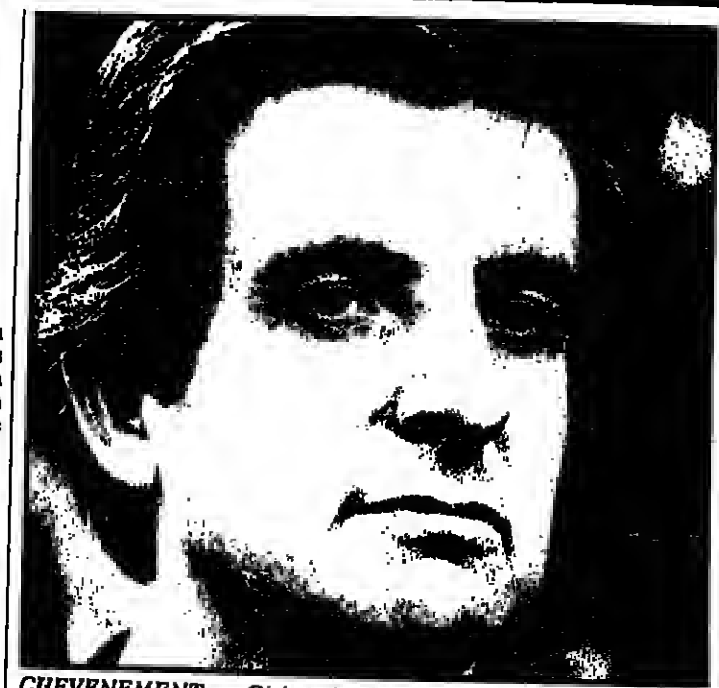
"There is more litigation now than ever before," Eycins said. "In a recession people want to make sure their investments are paying off. At the same time the computing industry is growing very quickly. And micro and minicomputer users have had their expectations raised by all the talk of computing."

Jacot at DBA agreed. His firm has set up a section to help lawyers involved in computing cases. "In all the cases we have advised on there has been an element of the user not fully appreciating what was involved in moving to a computer," he said.

Jacot said 90% of the cases it had been involved in had been started by users. But they were not all small first-time users. They ranged from a large city institution and an international company to a small firm selling stamps.

The new legislation was welcomed guardedly by users. "We're in favour of anything that strengthens our arm," said George Goodwin, an officer of the IBM users association.

"But litigation must always be a last resort. Normally the supplier is anxious to leave a good impression and the user is anxious to sort things out, so the two sides work closely together on a problem. But once the user goes to court that cooperation goes out of the window."



CHEVENEMENT... Giving priority to distributed systems.

Cii HB promises profit in return for govt cash

by Jack Gee
AILING computer firm Cii Honeywell Bull is the first of France's nationalised groups to receive its 1.55 billion francs (£155 million) share of the Ffr 20 billion (£2 billion) which the French government is allocating this year to the loss-making industry sector.

Jean-Pierre Chevenement, Minister for Research and Industry, went to Cii Honeywell Bull's Paris headquarters to sign a contract for the cash payment in return for commitments by chairman Jacques Stern to an ambitious development and manufacturing programme.

France's electronics and computer makers are receiving only a relatively small share of the funds earmarked for the State sector in 1983. Thomson-CSF will get Ffr 16.6 billion (£1.66 billion). Compagnie Generale d'Electricite, the only group to turn in a handsome profit, will collect Ffr 870 million (£87 million).

Remarkingly, however, on the meagre sums available for high technology industry, Chevenement said: "It's up to the firms which consider they are not getting enough to manage. That's what independent management means."

The Minister was making a side comment on recent criticism from President Francois Mitterrand who, after a private lunch with the chief executives of the state firms, told Chevenement to

Commodore sales shows cover the entire UK

by Robert Parry
COMMODORE, top seller in the UK micro market, is driving a message home with a campaign. Today (Thursday) is the second day of concentrated advertising, involving all 154 of Commodore's UK dealers in the first distributed show.

The country is covered by Truro to Tayside, from Swindon to Suffolk, with dealers displaying the latest Commodore offerings - the 700 series, the and the reborn 8000 series from hotel exhibition centres. The aim is to take the effort of finding out about Commodore.

The shindig is coming to Commodore and its dealers will sell £250,000, of which £100,000 is coming from Commodore for national advertising of the show.

Meanwhile Hewlett-Packard has been active on the advertising exhibition front too. Last week staged a personal Computer Fair in London's Barbican Centre, pulling in around 5,000 computer and scientific professionals to HP's version of the personal computer show.

The event, backed up by HP and press advertising, is part of HP's scheme to convince people that it is serious about personal computers, from portables like the HP 75C right the way up to its HP 9000. It seems to have been a success, according to a Hewlett-Packard spokesman, who reported a good level of business - including some for the HP 9000 - for the company and the 40 software suppliers also taking part.

Apple too is getting into the dedicated show game with its exhibition in Manchester's March.



... "Now we can get on and do the job properly."

State control threat irks UK contract workers

by John Riley
A SHOCK amendment to an already controversial European Bill on temporary workers has outraged UK data processing agencies with its demands for a public sector monopoly of contract employment.

The amendment came from the influential 30-strong European Parliamentary Committee on Social Affairs and Employment, which has been charged with studying and amending a directive on temporary workers, proposed last year by the European Commission.

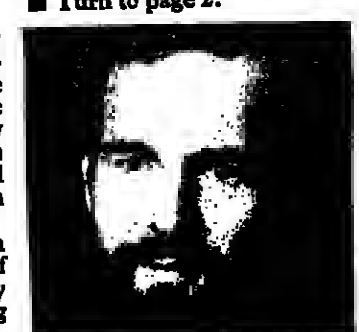
Conservative members of the European Parliament, who oppose the Bill, hold a majority on the committee, but they were caught on the hop when an alliance of

Socialist MEPs voted that the public sector should take over the placing of temporary workers after a transitional period of tight legislative control over private employment agencies.

Neither Conservative nor Socialist MEPs expect the amendment to be passed when the European Commission directive and amendments are debated by the full European Parliament in April. But the vote has increased the intensity of the campaign in the UK against the directive.

The EC directive was issued in April last year largely as a result of trade union pressure, particularly in France and Germany. Among the proposals which could adversely affect the data processing contract industry were:

- Contract work limited to three months, renewable to a six-month maximum;
- Temporary staff to be paid the same as permanent staff;
- Turn to page 2.



PATTERSON... Pushing for amendments.

CDC gets stake in Systime

by John Kavanagh
US COMPUTING giant Control Data has become the biggest shareholder in the UK systems manufacturer Systime by buying about 35% for more than £10 million. The move cuts the government-owned British Technology Group's holding from 29.5% to under 20% - and opens up new overseas markets for Systime products. Control Data will be selling the UK firm's systems in the US and elsewhere.

Control Data's £10 million-plus represents new investment in Systime through the issue of extra shares. Systime managing director John Gow said the new money was needed to back the company's growth, running at 50% a year.

Revenue this year are expected to reach £66 million, compared with £44 million in 1982.

"This move gives us the finance we've always wanted to get on and do the job properly," Gow said.

Systime approached its existing shareholders for backing first but the British Technology Group has just been told by the government that it must cut its annual spending to £10 million. The other shareholders before the Control Data involvement were a group of pension funds, with 36.2%, and

five directors, including founder Gow and chairman John Parkinson, with 34.2% between them.

All these parties will have their shareholdings reduced.

Gow said the investment made sense for Control Data because it was Systime's biggest supplier of components bought in from outside. As a peripherals supplier Control Data provided 40% of those components by value, he said, whereas the US minicomputer firm Digital Equipment, which supplies processor boards, accounted for only 10%.

Systime is already in the US with its Systel teleprocessing monitor for DEC machines. But the Control Data involvement will take the company's equipment to the US for the first time in a big way. The systems include machines based on DEC's PDP-11 and Vax minicomputer ranges as well as smaller machines designed by Systime and based on Intel chips.

Over the last year the company has moved into a new £15 million factory in Leeds, funded by the Department of Industry and the BEC.

Govt decision soon on Alvey plans

INFORMATION Technology Minister Kenneth Baker last week announced in the Commons that the government would respond "shortly" to the Alvey Committee's £350 million plan to back information technology in the UK.

Baker added that the government had almost finished its consultations with interested groups. A Department of Industry spokesman declined to comment on rumours that the government would announce plans to implement all the major features of the report next month.

Sinclair's million

SINCLAIR Research claims to be the first company to sell a million home computers just three years after launching the Sinclair ZX80. It has sold 130,000 ZX80s, 750,000 ZX81s and so far nearly 200,000 of the newer and bigger ZX Spectrums, as well as 600,000 computers made under licence by Timex for sale in North America.

Transac control

CII-HONEYWELL Bull's holding company, Compagnie des Machines Bull, has taken majority control of Transac, the peripherals subsidiary of Alcatel Electronique which is part of the vast State-owned Compagnie Generale d'Electricite group.

First choice

APPLICATIONS for university computer science degree courses are up 5.1% on last year, according to the Universities Central Council on Admissions. The latest figures show that UCCA show that 4,795 school-leavers and others made computing their first choice subject compared with 4,564 in 1982.

Management sets up new company after VAT man knocks at door

by John Kavanagh
VAT demands have put the Data General specialist software house Computerplan out of business. But a new company, Computerplan Software Services, has been formed by the management to take over the business and 10 staff.

The new company expects to be profitable on its first-year turnover of £750,000 - and hopes to pay off Computerplan's creditors after six months.

The new company has the backing of Data General: at the creditor's meeting tomorrow (Friday) the US minicomputer manufacturer will support the management plans.

"Computerplan has invested substantially in software development since its formation in 1977," said George Brown, managing director of Computerplan and majority shareholder. "But

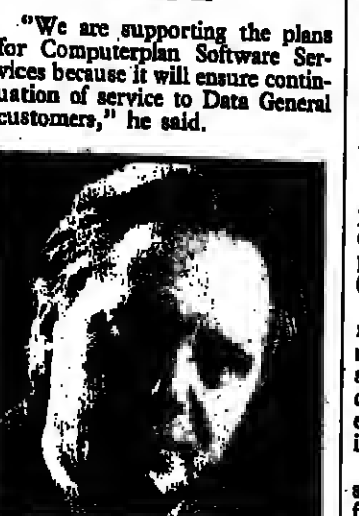
the development costs overran the company. Computerplan Software Services was formed as a subsidiary in October to protect the users and jobs in anticipation of the parent being wound up.

"We had hoped to restructure the subsidiary's finances after six months, for example by bringing in an outside investor, and pay off Computerplan's creditors. But a substantial creditor - the Customs and Excise - was not prepared to wait."

Brown added that another creditor, the Inland Revenue, had been ready to wait.

Brown and five senior people are now working on the purchase of Computerplan Software Services from the parent. He said there were no bids from outside.

A Data General spokesman said the US firm was a "major creditor."



BROWN... "Development costs overran the company."

Burroughs into PCMs

From front page.
and Hitachi, as far as is known, continues to supply IBM with laser printers despite the recent verdict against the company in California for stealing IBM secrets.

Late last year Mitsubishi did a deal with Sperry Univac for the supply of integrated circuits, large-scale integrated circuits and for some peripherals. The deal with Sperry appeared to end a long-established link between Sperry Univac and Old Electronic, which made and supplied Univac machines in Japan.

The coming deal between Burroughs and either Hitachi or Mitsubishi is also set to follow the pattern of old deals abandoned, new deals made, which is how things are going in Japan at the moment.

Mitsubishi has had no successor to the RCA/Xerox/Sigma relationship, and has been casting about for some time for a successor.

Hitachi on the other hand has been very aggressive in the marketplace, with deals to supply BASF and Olivetti in Europe, and NAS in the US, with IBM compatible mainframes.

For this reason the Japanese feel certain that the major deal will be with Mitsubishi and Burroughs, with maybe some extended peripherals agreement with Hitachi.

Burroughs was reluctant to comment directly on any coming announcements, but the company accepted that Mitsubishi's visit was for the purpose of evaluating Japanese companies.

LINE NOISE

UNDETERRED by peace pickets at a recent conference on the controversial defence language Ada, the government is about to announce £5 million support for the four companies of Ada Group. The money will be used by the consortium led by SPL International and Banked by ICL, Support Designers and Software Sciences, to develop the Ada Program Support Environment, or APSE, which includes the compiler and operating system.

STORAGE TECHNOLOGY says it will make the first shipments of a central processor by the end of the year. Some commentators suggest the company could not bring a product to market so quickly, but as they say, the proof of the pudding will be in the eating. The STC CPU will be about the size of the expected new Olympia machine from IBM. STC is also promising shipments of its optical disc with four gigabyte platters by next year. And it also says that STC, not CDC or Memorex, will be the first to ship 3380s in production quantities. STC says it is signing provisional orders with customers on that basis.

LAMBART, the zero-to-£7 million in four years DEC systems specialist, is about to dip a toe into micro waters. The company admits to plans to push 3-400 micro on to the UK market this year. From an as yet unnamed foreign maker on an exclusive distributorship. But the Maidenhead-based firm is enjoying tight-lipped about the supplier for their about - at least in the DEC market.



Deal on for IBM and Matsushita

by Kevin Pearson
IBM and Japanese electronics manufacturer Matsushita are to announce a joint venture to manufacture computers and ancillary equipment.

The two companies, in a formal statement, said they were holding "detailed discussions on a proposal to set up a joint venture company to make information processing equipment in Japan". No firm timescale has been put on the negotiations, but the intention is to reach a conclusion "as soon as possible", an IBM spokesman said.

Co-operation between Matsushita, the sixth largest electronics manufacturer in the world (known in the UK as National Panasonic) and IBM is believed to cover joint product development, as well as manufacturing. Matsushita has been working on office automation equipment with extensive graphics facilities.

The proposed joint venture would concentrate on the lower end of the information technology market, including terminals, office automation equipment and small business computers. It would ally

IBM's computer expertise with Matsushita's knowledge of mass production techniques.

This is the first time the companies have admitted a serious business relationship, despite rumours stretching back to 1981. It was speculated, prior to the launch of the IBM Personal Computer in the US in mid-1981, that Matsushita had been commissioned to design a microcomputer for IBM.

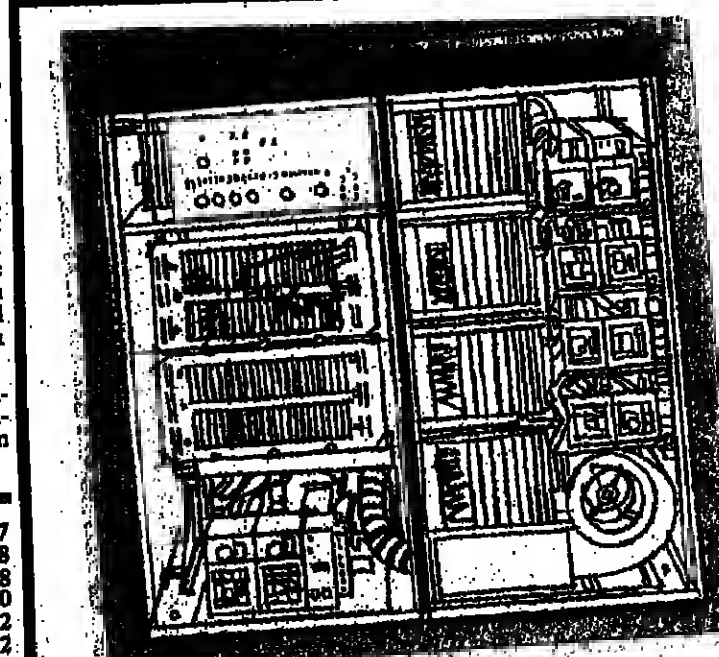
IBM denied this at the time, and the machine which emerged was designed by IBM staff. But rumours of a potential link-up between IBM and the Japanese electronics giant continued.

IBM already has a sizeable manufacturing operation in Japan, which is its second or third largest market outside the US. Until 1981 IBM was the largest supplier in the market, but it was then overtaken by Fujitsu, and is being chased hard by Hitachi, both of which make IBM-compatible machines.

The fourth major Japanese computer company is Nippon Electrical (NEC), which once had design links with Honeywell.



News Analysis	7
Micro News	8
Software File	8
Company News	10
Workplace	12
Puzzler	12
People/Directory	13
Profile/Platform	14
Downside by Chad	14
Liveware File	14
Leaders, Letters	15
CAD North Preview	16/19
Markets	20/22
Products	22
Sales File	45
Line Noise	48
Top Jobs	26
Job Vacancies	23/47



4308 Solid state disk that accesses records in 0.3ms. Just one of the range of peripherals for the IBM user designed, manufactured and maintained by Storage Technology.

STORAGE TECHNOLOGY
Leading the way for future generations.

April 1, 1983

SPL aims to counter Japanese

by Philip Hunter
SPL International is forming a European group from leading industrial and research bodies to reply to Japan's grand plan to build a radically different type of computer by 1990. The group is east in the spirit of the government's Alvey report on the Fifth Generation of computers, and is one of the first positive responses to it.

"We need government investment urgently," said SPL Fifth Generation project manager Bob Muller, in a reference to the £350 million that the Alvey report said should be made available for the kind of industry-based research common to Japan.

So far there have been two solid industry responses to Alvey. Imperial Software Technology was launched last autumn by Imperial College, National Westminster Bank, Pirelli and Plessey, to pool

university and industry research in the exploitation of new software techniques.

At the same time six companies including SPL, Fictel and Logica formed a group to concentrate on joint software development with an eye to Fifth Generation.

SPL last year staged the first Fifth Generation conference to be held outside Japan, and launched its own expert system Sage. Muller admitted that Sage is the kind of product the new group launched by SPL will discuss, but said there would be no conflict of interest.

SPL's new group, called Insight, will focus on two areas: knowledge-based systems and the link with the end user. There will be an advisory panel of eight, including expert systems guru Alex d'Agapeyeff and Bob Kowalski of Imperial College who is the world's most dedicated expert on



MULLER... Hoping for Alvey money for Fifth Generation research.

Gould fills out its supermini range

by Robert Parry
SUPERMINI maker Gould SEL has filled out its range of 32-bit machines in its continuing quest for price/performance leadership in the supermini market.

The 32/67 machines plug the gap between its existing 32/27 and 32/87 models, using the cheaper semiconductor technology of the low range 32/27s to implement the high speed architecture of the 32/87s.

"There are no minicomputers faster or more cost-effective than ours," claims Gould's UK Southern region manager David Moody. "We already have the world's fastest supermini in the 32/87, now we've got the second fastest too."

Gould's performance figures for the new machines put them between two million Whetstone instructions per second for the low end single processor 32/6705 and 3.2 million for the dual processor 32/6780. The starting price is around £100,000, which gives the basic processor with one Mbyte of main memory, 80 Mbyte Winchester and a tape drive.

As with the top line Concept 32 machines, the 32/67 CPU uses a

four-stage pipeline, overlapping fetch, decode, execute and put-away phases of successive instructions. It has a dual cache memory, with 16 Kbytes each for data and instructions.

Two of these units, which use 2901 bit-slices giving a cycle time of 150 nanoseconds rather than the 32/87's BCL component, can be linked through the Selbus system bus. This gives an 80% improvement in throughput, says Moody.

This combination of speed and price, allied to the continuing software compatibility through Gould's MPX-32 operating system and its Unix implementation, will open up new market areas for Gould and strengthen its position in scientific/technical real time applications.

More than 50% of UK business is still in simulation, particularly for commercial and military aircraft, says new business manager Chris Wilkes, but he sees significant markets coming for Gould in universities and medical electronics, as well as commercial processing.

"We intend to play a very active role in university Unix environments," adds Wilkes.

Call for Tory commitment to reform of copyright law

by John Riley

THE effective outlawing of software piracy should go into the Tory manifesto for the General Election, says a Conservative computer group.

The Conservative Computer Forum, the Party's computer industry liaison group, unanimously agreed recently on what should be the two most vital government contributions to information technology for 1983. It wants comprehensive copyright reform legislation to protect computer and video software and electronic publishing, and it wants "pay as you view" from the outset on cable TV.

Charles Christian, a Forum committee member, commented: "We want a commitment to stop piracy. Our members from industry say they will have more confidence in building up software if there is protection. There was some provision in the Copyright Amendment Act last year, but it doesn't get to grips with modern technology - and the stiffest penalty remains at £50," he said.

While we are not a formal policy-making part of the Party, a number of Ministers are members of the Forum.

Scicon wins oilfield order from Burma

SCICON, the independent company formerly owned by Shell, has won a contract from Burmah Oil to implement an oilfield database system.

The first stage has already been completed for £30,000 and will be data on wells and platforms. Other sub-systems will provide data on the quality of crude oil.

Philips rolls on

A PRODUCTION management system worth £75,000 is being installed at an East Anglian mill of roller bearings by Philips Business Systems. The system will handle accounting, factory scheduling and export documentation of the bearings, which are used in systems such as radio telescopes and nuclear remote control equipment.

Seaside system

BRIGHTON Borough Council has given a £56,000 contract to Britec Management Services to place an old ICL computer with a new IBM model. The new system will automate billing of ratepayers, and the council says that about four jobs will be lost as a result.

Camber kits out

KNITTING machine maker Camber International of Leicester has placed a £438,000 order with Stonefield for a microprocessor-based system to control the "stripes" mechanisms on Camber's machines. The processor will be specially adapted to meet Camber's needs from Stonefield's general purpose Mini-Micro control system.

University update

UNIVERSITY of London Computer Centre (ULCC) has updated its data communications network with £70,000 worth of high speed modems from Thorn EMI. The modems will give the centre access to a planned network to link different makes of computer so that all UK universities will have access to ULCC's powerful facilities.

African exchange

PLESSEY Controls will install a £500,000 telephone exchange in the African country of Lesotho after winning an international tender.

ME29s in cement

ICL has taken a £2 million order for 12 ME29 systems with 20 DRS 20 terminals from Blue Circle Cement. A national network with links to existing IBM mainframes will be formed in speed up order processing.

GLC choice

A £633,000 contract to supply the Greater London Council with an office automation system has been won by Xionics. The Xibus system will be supplied by Master Systems of Camberley to County Hall with 80 workstations. The contract was won against competition from IBM.

Minis for NERC

THE Natural Environment Research Council has bought two GEC 4000 series 32-bit minis, one for its Institute of Hydrology in Wallingford, the other for its head office in Swindon, after evaluating machines from 21 suppliers.

700,000 an hour

NATIONAL GIRO has ordered its sixth £300,000 Trace 1 optical character reader from Recognition Equipment of Slough. It now has a throughput capacity of over 700,000 documents an hour and is believed to be the largest OCR user in the UK.



IBM'S AMAZING OFFER.

Do you sometimes ask yourself what on earth it was that possessed you to go into the world of computers?

Systems design, coding, program maintenance, project control, installing new software releases...and now Statutory Sick Pay...your list of responsibilities must seem endless.

We at IBM sympathise.

And we offer to help, through a unique facility called the IBM Bureau Service. Our help comes in two distinct forms.

First, we can offer you extra computer time when it's needed most.

In the shape of a terminal on your desk, connected via your telephone to our main computer, often at local phone call rates.

So you're just a phone call away from your information.

Whenever you need it, 8 am to 8 pm, five days a week.

Secondly, we can give you a whole range of productivity aids,

specialist programs, and the opportunity to try new technology - such as Viewdata.

Thus we can save you valuable time and help your Data Processing Department cope with overloads.

If you're worried about putting your data on to someone else's computer, a word of reassurance.

Because no-one can get access to it without your special code, it's as safe with us as it would be with a bank.

If you'd like to know more about the IBM Bureau Service, return the coupon.

It's the next best thing to an extra pair of hands.

IBM

To: Ken Hope, IBM Bureau Service, IBM United Kingdom Limited, 216-226 Imperial Drive, North Harrow, Middlesex HA2 7HH. Tel: 01-866 0101. Please send me further details of the IBM Bureau Service.

Name _____ Title _____

Company _____

Address _____

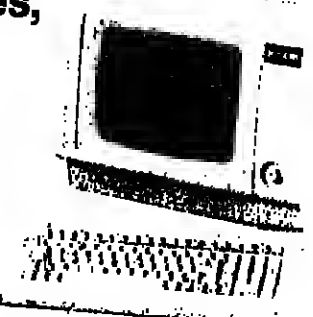
Tel No _____

PUT A FULL SIZE COMPUTER ON YOUR DESK

WORKING FOR BRITAIN'S FUTURE WITH 15,000 JOBS, £220M ANNUAL EXPORTS AND £600M OF INVESTMENTS

More Facilities, Lower Cost

The KBV is a low cost display terminal which offers more facilities than almost any comparable terminal.



- Detached keyboard with numeric cluster
- 12in non-glare green on black display
- Highlighting facilities
- Block and line graphics
- Programmable function keys which output user defined ASCII strings
- Built in diagnostic mode
- Printer port with screen copy facility
- QEM Discounts Available

KODE

Kode Limited

A member of the Kodak International Group

Station Road, Caine, Wiltshire SN11 6JR, England. Telephone: (0249) 813771 Telex: 448335

NEW

TERMINAL ACCESS CONTROLLER KEEPS COMMUNICATIONS OPTIONS OPEN!

New, low-cost Terminal Access Controller (TAC) can solve both immediate and future data communications needs. Versatile, software-controlled data switchboard, caters for multiple service requirements and growing user needs without disrupting or replacing existing services and equipment.

TAC SERIES 3 for micro-networking
TAC SERIES 4 for the higher volume user

Whether you need 16 or 256 communications channels Xtoo can provide full data communications capability, with intelligent switching, protocol conversion, multiplexing and coupling as required.

For further information contact:
Xtoo Limited, High Street, Hartley Wintney, Basingstoke, Hampshire RG27 8PB
Tel: Hartley Wintney 4222/4223/4244 Telex: 848288 CAVAC

IBM will push PC harder, says report

by George Black

A MORE aggressive strategy by IBM to promote its Personal Computer is forecast in a new report this week. And it could announce an IBM-PC.

The research director for publishers Strategic Incorporated, Allen Jeffery, says IBM was taken by surprise by the PC's runaway success and up to now has been worried about its possible effects on other IBM products.

But the giant will be pushing much harder from now on, Jeffery thinks. A high-end model to compete with Apple's Lisa could be on the drawing boards. And there could also be a low-end portable to break into the hobbyist market.

The Lisa challenger would also be Intel-chip based and its software would be compatible with

that of the present PCs. A Unix-type operating system will probably be introduced on both, it is predicted. To boost its market share, IBM will be taking advantage of its size and strength with aggressive pricing and discount policies.

The PCs could be enhanced with high-resolution colour graphics, light pens and a Lisa-style "mouse".

The minimum production level by IBM in 1983 is likely to be a million to a million and a half. By 1985, with the aid of a low-end model, IBM could have captured as much as half of the market, the report says.

"IBM's Personal Computer Strategy - The New Round," by Strategic Incorporated, is available from International Publishing Ltd, 14 Holland Park Avenue, London W11 4UR, price £1.50.



ROBINSON... No invasion?

'Privacy may not be threatened'

IT is not clear that the use of the computer must result in an invasion of people's privacy, Winston Churchill feared that the discovery of X-ray photography would spell an end to all human privacy because it could see through walls and clothing, yet nobody would today regard the X-ray as a threat to privacy.

This message will be part of the British Computer Society's Silver Jubilee lecture to be delivered next week by Dr Louis Robinson, IBM director of university relations. The BCS Silver Jubilee is sponsored by Computer Weekly.

Robinson will also discuss machine complexity in his paper entitled "The Challenge of Future Directions in Information Processing". He will argue that certain inherent complexities in information processing cannot be wished away.

Information processing will always be complex, according to Robinson, but its complexity can be handled by the system or the user. Until now, Robinson contends, a great portion of that complexity was handled by the user.

But personalised computing demands have created a market demand that a great deal of that complexity be absorbed by the computing system itself, thus making access to the computer system easier for the user.

'Each person in France figures in about 500 files'

French struggle to guard privacy

by Jack Gee

THE FRENCH Commission for Citizens' Protection Against Data Processing says in its annual report that the fast growth of databanks is making it increasingly difficult to ensure that the law on computer files is respected.

The law, passed in 1978, set up the Commission which is composed of parliamentarians and government nominees with a watchdog role of ensuring that citizens have access to databanks in which their names figure. Police files are excluded from these provisions.

Senator Jacques Thyraud, a Conservative politician who heads the Commission, said: "Every citizen can obtain access to a file if he has doubts about the legality of the information it contains about him. But our Commission receives only a dozen complaints of

this type each month on average." France's data privacy law bans references in files to individuals' religion, politics, race or health. However, the deterrent role of the Commission seems to be confirmed by the fact that so far complaints from citizens have all been satisfied without intervention by the courts.

The law requires all databased lists of names to be registered with the data processing commission. Only 30,000 were registered by the deadline at the end of 1981. Since then 100,000 others have been added, indicating increased respect for the law as well as the creation of new databanks.

Senator Thyraud says in the Commission's third annual report: "Each person in France figures in about 500 files."

The Commission has intervened

successfully in recent months to protect citizens' rights against the State. It has ensured that the file of people liable to pay the newly created wealth tax on fortunes over £300,000 is not extended to those who might later enter this bracket.

It has also imposed restrictions on the government's new file aimed at combatting terrorists, limiting this to about 20,000 people instead of the original target of over two million set by the police.

Commenting on the difficulties faced in protecting the citizen from databanks, the report says: "It will become more and more difficult for the individual to get lost in the crowd. Like a pinball he will keep bouncing against new barriers which will trigger signals. Our job is to make sure that the data tracks do not meet."



Computers help police keep tabs on a wide range of problems.

Computer gives police the 'tip-off'

LANCASHIRE police handling some 100 burglar alarm calls a day of which 97% are false have taught a computer to sift them. The program will "tip them off" which ones are likely, from previous experience, to be false. The software

is based on a chain of micros from MDS Computer Systems (UK). MDS - known in the US as Mohawk Data Sciences - has recently won another contract to supply Lancashire police with five more micros, bringing their total

to 10. The Series-21 distributed processing system is being installed at the headquarters in Fleetwood and at offices in Lancaster, Blackpool, Accrington and Preston. Value of the whole deal is about £81,500.

Third party vendors get own conference

BUYING in hardware and software products then selling to the end user is the subject of a conference being organised by *Computer Weekly* in April.

The conference is for so-called third party vendors - the systems houses, OEMs, software houses, distributors, dealers and retailers which buy in from a manufacturer or supplier and market to the end user. It will cover the ways to sell, the level of post-sales support to offer, the right product to choose for the right market, and the use of advertising and direct mail.

Called the Computer Trade Conference, the event runs alongside *Computer Weekly's* recently announced Computer Trade Show at the Wembley exhibition and conference centre. Dates are April 26-27 for the conference, and April 26-28 for the show.

Both conference and exhibition are the result of collaboration by *Computer Weekly* and sister journals *Systems International*, *Practical Computing* and *Software*.

One of the highlights of the programme is sure to be how the majors - in this case IBM, ICL and DEC - are operating their own authorised dealer schemes.

Finally, the conference will be a must for manufacturers as well as vendors, with presentations on how to go about selling through a major computer company, not contract under which ICL make and sell its Black Box, Compaq Technology's deal with the roughs and Peachtree's breakthrough in IBM Personal Computer packages at all successful examples which can be copied.

Full details of the programme are shown in the advertisement on page 19.

■ To reserve a place or get details of exhibiting or visiting the Computer Trade Show simply clip the coupon in the advertisement or contact the organisers at The Computer Trade Show and Conference, Surrey House, Throby Way, Sutton, Surrey SM1 4QQ. Tel: 01-643 8040.

Market for DBMS to hit \$1.7 bn

by George Black

THE world market for database management systems will grow to \$1.75 billion by 1987, says an American report.

Five vendors account for more than two-thirds of the traditional market at present - IBM is much the biggest, with Cullinane and Chiscola vying for second place, followed by Intel and Software AG. The smaller market for non-procedural DBMS-based languages is being dominated by Mathematica Products Group with a 22% share, the report says.

Runners-up at present are Information Builders with 18% and Infodata Systems with 12%. Traditional DBMS packages for mainframe use will decline to two-thirds of the market in the next four years, it is forecast.

Programs for desk-top machines will have taken more than a tenth of the cake by then. Annual compounded growth of 31% is forecast for independent companies writing DBMS packages.

The DBMS Marketplace, International Data Corporation's Software and Services Division, 1100 Avenue of the Americas, New York, NY 10020.

CDC gives micros to colleges

by Howard Kartin

CONTROL DATA last week announced a \$6 million giveaway of Model 110 eight-bit microcomputers and some Plato software.

The company will give one of the micros and some of its Plato maths and science course materials to each of 110 colleges which will be required to submit to CDC's plan for integrating the Plato technology into their curricula. The colleges will also be required to develop plans to transfer the technology to secondary schools and community groups by October 1983.

Upon approval of the plan, CDC will give each school free additional micros and some additional software.

CDC has a strong reputation as "a company with a social conscience", and CDC president William Norris has long been interested in applying technology for the betterment of various groups. CDC has spent more than \$1 billion over the past 20 years developing Plato, which is an extensive set of computer-assisted instruction materials.

NEWS ANALYSIS

Govt seeks right way to regulate telecomms

Donald Kennett reports on the efforts to liberalise telecommunications

THE GOVERNMENT is making great play of its careful consideration of the moves towards an open market in telecommunications.

Earlier this month it published the findings of an independent report on how to regulate the activities of British Telecom when it becomes a private company with a dominant presence in its market.

The report, by Professor Stephen Littlechild of Birmingham University, reaches similar conclusions to the report two years ago by Professor Michael Beesley of the London Business School. Beesley was asked to study to what extent companies' rights to sell services based on circuits leased from BT should be limited in the interests of the consumer and of BT's continued viability.

He concluded that it was in the consumer's interest to allow complete freedom while the detriment to BT from this would be small. If the principle were carried progressively into international circuits, BT too would gain.

Beesley went outside his remit to recommend competition in transmission and switching as well. This would make it easier to regulate BT's activities in the interests of consumers, he said, as well as providing a choice of price and quality packages.

In presenting his arguments Beesley made several references to a book called *Elements of Telecommunications Economics* written in 1979 by Littlechild.

'It's a bit like wrestling with an octopus. But if there were no such things as British standards, it would be a charter for importers.'

Littlechild's task in his recent report was to determine the best means of regulating BT. Beesley had said this would be easier to do in the presence of some competition. Littlechild said that providing more competition was by far the most effective way of doing it. He also had to consider how to maximise the proceeds from the sale of BT shares, encourage efficient and innovative telecommunications systems and satisfy all reasonable demands for services.

He concluded that the best way to do all these was to create more competition. This should be done by allowing resale of private circuit capacity, telephony on cable television networks, more radio networks when the spectrum became available, more terrestrial and satellite networks if they used different techniques from BT and its rival private network Mercury, and by allowing Mercury to have switched international connections.

But this competition would not protect the consumer from exploitation while BT still had a dominant market position. So in the short term Littlechild recommended that the prices for the services that most affected small business and residential users be pegged below inflation for at least five years.

The government rejected the idea of allowing telephony on cable television networks, except where BT or Mercury were involved, and decided that BT and Mercury would still be the only organisations to provide links between cable networks.

International connections are to

be the subject of an announcement by the end of April, and resale will go ahead on terms and timescales to be discussed with BT and other operators.

When the Beesley report was presented, BT and its staff unions were horror-struck at the prospect of network capacity being resold by customers with private networks. It was felt that such a move would undermine BT's ability to fund the modernisation of its plant.

Two years later BT merely says resale will create pressure for accelerated tariff rebalancing - the raising or sustaining of local call prices while the long distance call charges which have been subsidising them fall.

Union and political reaction to the government's plans has now become a diffuse opposition to the whole range of denationalisation and deregulation activities which affect a number of industries and which can only be resisted effectively by changing the government at the next election.

Paradoxically industrial action would be likely to weaken the protesters' position by accentuating the desirability of alternative sources of supply. Once alternative sources were set up, action against the dominant supplier would stimulate demand for them as nothing else could.

Information Technology Minister Kenneth Baker has called the licensing of Mercury one of the most important decisions this government has made. Even before starting up, he says, it has prompted BT to cut its long distance call charges and to improve the efficiency of its operation.

The Telecommunications Bill now going through Parliament is intended to free BT from government constraints on how it raises funds for investment and how it makes its policy decisions. The reasoning is that governments, with competing demands on their budgets, may easily underestimate the amount of investment needed in an important area like telecommunications and will find it hard to make a large investment which will have a payback period longer than the election cycle.

It is also argued that rapid progress cannot be made without taking risks and that risk investment on a significant scale is inappropriate to a government-backed organisation.

To prepare for operation on a commercial basis, BT has reorganised itself into about 90 profit centres, 60 of which are sales areas and the rest more specialised services such as Prestel, the Packet Switch Stream data network, telex and facsimile transmission. This will force each part of the business to operate as a revenue generating unit, offsetting costs against charges instead of as a monolith providing a range of interdependent services.

In the long run these may become separate companies each raising their own capital and making their own investments. It is already in prospect that the areas will do their own local purchasing and may charge different prices from each other for similar products or services.

Meanwhile Littlechild has proposed more competition from new suppliers outside BT, but the government is holding it back from going all the way. It is unclear whether it has doubts about the safety of going to completely open competition in all areas, is respecting the wishes of its opponents to avoid rushing headlong into complete change, is keeping everyone guessing so as to weaken the oppo-

sition, or is introducing change at a rate that allows each step to be understood before going on to the next.

Baker, for example, has been criticised for failing to publish the licence that will be issued to BT while the Bill under which it will be issued is at the appropriate stage in committee. Baker replies that the document he has published as "the government's views on the licence" is in fact the licence in plain language. Waiting until it is put into legal language will, he claims, only make it more difficult to understand.

He has also been accused of setting up prohibitively expensive procedures for approving equipment to be attached to the network. His colleague John Butcher answered that by saying that the Department of Industry was get-

ting quotes from approval agencies in West Germany, Canada and the US on their test fees. "I have yet to be convinced we are out of kilter," he added.

Complaints, he said, had mostly come from very small importers. Standards for testing against were taking a while to implement because it was necessary to obtain consensus in the committees discussing them. "It's a bit like wrestling with an octopus," Butcher said. "But if there were no such things as British standards, it would be a charter for importers."

There had been 32 approvals given so far under the new procedures, Baker said, including 11 for devices made in the UK, six for devices assembled here and six for devices being modified here.

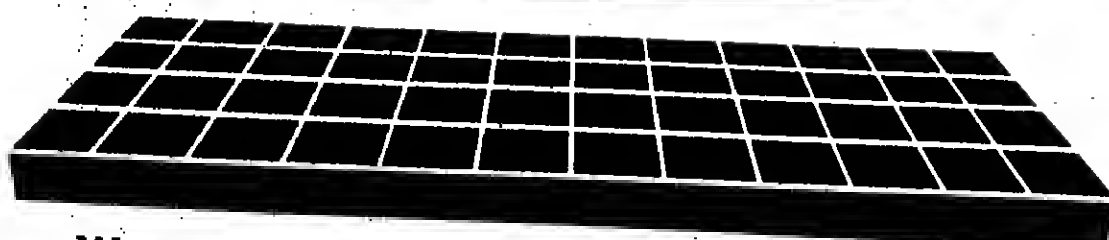
Turn to page 10.



Will British Telecom retain its dominance?

ANNOUNCING

The Computer Trade Show '83



Wembley Conference Centre April 26-28 1983...

Will be the most important trade show of the year - it will bring computer manufacturers and suppliers into direct contact with systems and software houses, computer OEMs, dealers, distributors and computer retailers. And no-one is better able to launch the definitive computer trade show than IPC. We know the computer market, publishing journals like *Computer Weekly*, *Systems International* and *Practical Computing*. We organise the computer industry's leading exhibitions: COMPEC and its regional offshoots in Wales, the North and Scotland; COMPEC Europe; The Computer Fair; The Northern Computer Fair; The Midlands Computer Fair; the CAD Exhibition; CAD North, and several others.

What's more, we have the right venue. London and the South East dominate the UK market for sales of computer systems and peripherals, and this Wembley Exhibition and Conference Centre is right in the heart of the region. Get more information about The Computer Trade Show '83 by coupon today or telephone John Cole on 01-643 8040.

Please send more information on Exhibition stand space
Please ask a salesman to telephone

Name _____
Position _____
Company _____
Address _____
Telephone Number _____

The Exhibition Manager
The Computer Trade Show
IPC Exhibitions Ltd
Surrey House, Throby Way
Sutton, Surrey SM1 4QQ

LOCAL

adj. belonging to a specified place

AREA

n. defined space for particular use

NETWORK

n. a chain of interconnected people or operations

John Cole 01-643 8040

Few people agree with the dictionary, especially those in data processing.

But as a leading supplier of the technology, ICL are now running a series of one-day seminars on the principles and concepts involved, for management and computer professionals alike.

So if you'd like a definition that's straight from the horse's mouth, make sure you're there.

The next seminar will be held in Manchester on 9th March.

Fee: £85 plus VAT (includes coffee, lunch, tea and full set of notes).

Book quoting course code ULAN/6 at ICL Beaumont, Old Windsor, Windsor, Berks SL42JP. Tel: 07535-51483.

For queries regarding content/administration, contact Nigel Tout or Trish Wright at ICL Forum, Bridge House, Reading, Berks RH1 8PN. Tel: 0734-581258.



Beware micros, says FT report

MOVING MICROS into offices might be all the rage, but it is costing companies dear. Keith Bedell-Pearce, author of the *Financial Times* management report on computers and information technology, warns that widespread introduction of personal computing in many businesses is costly and inefficient, and that the hidden costs of programming bump up the price of "cheap" personal computing to unacceptable levels.

"Senior management are being asked to make substantial financial commitments on microcomputer purchases," says Bedell-Pearce. "Even worse, they are sometimes not even asked at all, with the micros being managerial impulse buys out of petty cash. Many large organisations have no clear idea of the number of individual computing facilities they have under their wing."

Users without computer exper-

ience or proper training often adopt an undisciplined approach to computing, he continues, which compounds the problems. Security of information is compromised, and limitations appear on the growth of the systems to match more ambitious user requirements.

Bedell-Pearce urges a more cautious approach to substantial investments in office automation, pointing out that most suppliers are unlikely to survive in the market for long.

Companies should form a group view of how personal computing should be provided for those that want it he believes. The approach will vary from company to company, but for most large organisations Bedell-Pearce advocates the provision of personal computing packages on mainframes rather than a multiplicity of microcomputers.

"There is a narrow line to be walked between cramping the style of the personal computing people, imposing what they consider the undue restrictions of professional DP departments, and getting things arranged so that you can harness their enthusiasm," says Bedell-Pearce.

He sees the DP departments starting to offer the management seeking access to personal computing a choice: take the packages on a mainframe, with the advantages of access to corporate databases and all the housekeeping and maintenance taken care of but without much user friendliness; or go it alone with a recommended microcomputer, taking care of the housekeeping and putting up with restricted data capacity and limited communications with other users.

"There are cases when it is clearly better to go with a standalone microcomputer," he adds,



BEDELL-PEARCE . . . Micros may be costly and inefficient.

"but there is still a need to fix on a common system."

The report aims to offer a layman's guide to all aspects of computing, and is an updated edition of the report first published in 1979. The new sections cover the areas of office automation, personal computing, word processing, local area networks and informa-

tion technology in general. There is also a contractual briefing, where Bedell-Pearce covers what users should seek in computer contracts.

*Computers & Information Technology: The Essentials, Financial Times Business and Press, London EC4P 4BY. Tel: 01-248 8000. 255.

Televideo's new-look terminal for Europe

TELEVIDEO Systems is to re-launch its new-look top-line video terminal. The 970 breaks away from previous Televideo models in physical design, having a vertical housing for the electronics on one side of the terminal. Air for cooling can be easily past the logic board and power supply, and does not need a fan.

The CRT screen can display 80 or 32 characters to the line, with a choice of two character sets at a time. There are eight different sets in the terminal firmware, and two of these can be loaded for immediate access. The keyboard is completely soft, allowing the user to define special character sets.

The basic terminal comes with a Z80A processor and 64K of memory, containing all the information needed to set communications links, screen sizes, character sets and so on from the keyboard. The terminal will emulate those from other makers.

32-Bit UNIX ? A unique opportunity

Perkin-Elmer offers fully supported 32-bit UNIX*, probably the world's best timesharing system, in an unbeatable package deal based on the super-compact 3210 system. Application development is exceptionally easy and fast, performance is optimised for good interactive response, there's a vast range of time-saving O/S-linked utilities.

Here's what you get:

Commercial users:

Hardware
Model 3210 cpu
512KB memory
64MB disc
8MB/sec throughput
Dual bus architecture
8 user ports
Software
Edition VII+ UNIX (binary)
Source Code Control System
Full screen editor
Word processor
FORTRAN 77
PASCAL
BASIC
C
Berkeley enhancements

All this for just
£34,500

*UNIX is a trademark of Bell Laboratories
*Edition VII is a product of Wollongong Group Inc.



The world's first 32-bit UNIX implementation was on a Perkin-Elmer machine at Bell Labs by Ritchie/Thompson.

Completely standard Edition VII UNIX
Rapid response for up to 32 users
Memory expandable up to 4MB
Disc capacity greatly expandable

Educational users: (must qualify for an Educational Licence from Western Electric)

Hardware
Model 3210 cpu
512KB memory
32MB disc
8MB/sec throughput
Dual bus architecture
2 user ports
Software
Edition VII+ UNIX (source)
Source Code Control System
Full screen editor
Word processor
FORTRAN 77
PASCAL
BASIC
C
Berkeley enhancements

All this for just
£29,990

For more facts, contact
Fred Mascarenhas on
Slough (0753) 34511, or
complete the coupon.

To: Perkin-Elmer Data Systems Ltd., 227 Bath Road, Slough, Berks SL1 4AX

Name _____ Position _____

Company _____

Address _____

Telephone No. _____ CW24/2

PERKIN-ELMER

Handwritten signature or mark.

Five micro firms' adverts in trouble

IT has been a bumper month for advertising troubles among micro companies. Complaints lodged in December against five of them were upheld by the Advertising Standards Authority, with Dragon, Rank Xerox and Olivetti joining the hardy perennials Acorn and Sinclair.

The complaints against Sinclair both covered ZX81 adverts. One concerned the availability of software for the machine; the advert

showed three software packages that needed the 16K RAM extension, but neglected to point this out, leaving the advert open to misinterpretation.

The other centred around the advertising line "All you need to run the programs . . . is a portable cassette recorder." Several popular with the ZX81, and the ASA says that Sinclair should make it clear in the adverts that this is the case.

Micro News is compiled by Robert Parry

SOFTWARE FILE

Tool factory computerises for survival

by George Black

A TYNESIDE machine tool factory with £200,000 to invest in modernisation has opted for a computerised management system.

The main problem for Stewart-Warner, makers of Turbopump, pneumatic pavement breakers and Alemit pumps, was one of too many parts. Manufacturing director John Holmes admitted that a firm with a £5 million annual turnover struggling to make a profit should not have some 13,000 parts to keep track of. But there was not enough money available to carry out the radical redesign of the whole operation which would have been the ideal solution.

Most of their machines are ten to 15 years old, some even pre-war. To replace the lot was out of the question. Once Britain's largest undertaking of its kind, under the name of Armstrong Whitworth, which employed about 70,000 workers, it was bought by an American concern and has in recent years been hard hit by the recession. The payroll is now a mere 200, and the factory is running at well below capacity.

Instead of the drastic move to complete automation, they turned to a new software answer provided by Burroughs, broadly called The Manufacturing System - TMS. Burroughs is trumpeting it as the first of its kind, welding together all a company's dealings from supply of components through

to distribution of products. The idea is in its infancy: the B1900 mini is still far from taking over all Stewart-Warner's paper-pushing tasks. But after the first year of running the system Holmes claims 30% improvement in productivity - a £500,000 saving, with a 20% reduction in inventory.

Management services manager Norman Massey commented, "The bureau service we used was okay for some jobs, such as costings, but was no good for general planning." The software amounts to about half a million lines of Cobol code, covering accounts, payroll, maintenance and asset register, material requirements planning and a range of production aids.

Tyneside MP Neville Trotter put the situation into a starkly realistic perspective: "Developments in Korea and Taiwan frighten the Japanese as much as they frighten us. One Korean factory has all 13,000 workers doing 25 hours a week overtime each - at very low rates of pay. With that kind of commitment you don't need subsidies. They get by without any welfare state and are thus able to put a quarter of their national income into new plant. All of this is extremely difficult for us to face. I've been 20 years in public life and in that time there have never been enough jobs here in the North-east. The use of high technology is the only way we can protect our standard of living."

Acom's trouble was with incompatible peripherals, too. This time it was television sets and the Atom, its advertising said that any UHF colour or monochrome TV would do, whereas several were not compatible with the Atom.

Dragon and Olivetti were in trouble for misleading comparisons. Olivetti's problem was a comparison chart that gave an average system price for the M20, but failed to make it plain that the £2,395 quoted was not for the colour display version in the advt. Memory size was Dragon's

downfall. It claimed that the Dragon's 32K of RAM made it at least twice as powerful as its competitors, which upset a member of the public who pointed out that the Sinclair Spectrum was available in a 48K version as well as the 16K machine referred to in Dragon's comparisons.

Rank Xerox fell foul of the ASA through an offer of a free cassette on microcomputing to people who tried out the Xerox 820 II in a Xerox store. Two of the London stores refused to provide the cassette.

MOS circuits joint company

UNITED Technologies, AEG-Telefunken and Diehl group are to concentrate activities in developing, producing and marketing custom MOS circuits in a jointly formed company, Eurosil Electronics.

Eurosil Electronics will take over the present activities of Diehl's Eurosil subsidiary, formed in 1972 to supply ICs to the watch and clock industry, and for instruments and telecommunications. Diehl will have a minority interest in Eurosil Electronics.

PPL into micro software

PREVIOUSLY associated with mainframe and mini financial software packages, Package Progress Ltd aims to move into micro software this year.

The intention was announced last week by managing director Roy Taylor. "The idea is to make whole range of 16-bit micro usable as intelligent terminals," he said. PPL will adapt some of its own software to meet the changing market, as well as buying in a number of packages from small British software houses.

System to predict staff needs

by George Black

A MANPOWER modelling system which mirrors the highly successful financial modellers has been developed by the Institute of Manpower Studies.

The package, called Prospect 2, is a computer model for predicting personnel needs. The specification was worked out by a team from the IMS, Shell, the Wellcome Foundation, BP, the Department of Health and Social Security and the Trustee Savings Bank. The program was written for the IMS by Bernard Weyman, formerly database researcher in the Department of Computer Science at London University's Birkbeck College.

The system is now available in three mainframe versions and on I. P. Sharp Associates' Canada-based time-sharing network. Trials are now taking place on a scaled-down, micro version, which it is hoped will be available by May. The micro project is being carried out by Des Watson, a researcher in Sussex University's computer science department.

"We considered various ways of going about the idea and decided that to write it in APL would be quickest," said the IMS deputy director Malcolm Bennison. "Prospect 2 is designed to enable you to say what staff you are likely to need at various levels if a certain set of options is followed."

To date personnel planning systems have usually been developed in-house at relatively high cost. I. P. Sharp and the IMS are hoping to prove that an off-the-shelf package or a bureau service can offer a cheaper and more satisfactory alternative.

US database system aims at UK public sector sales

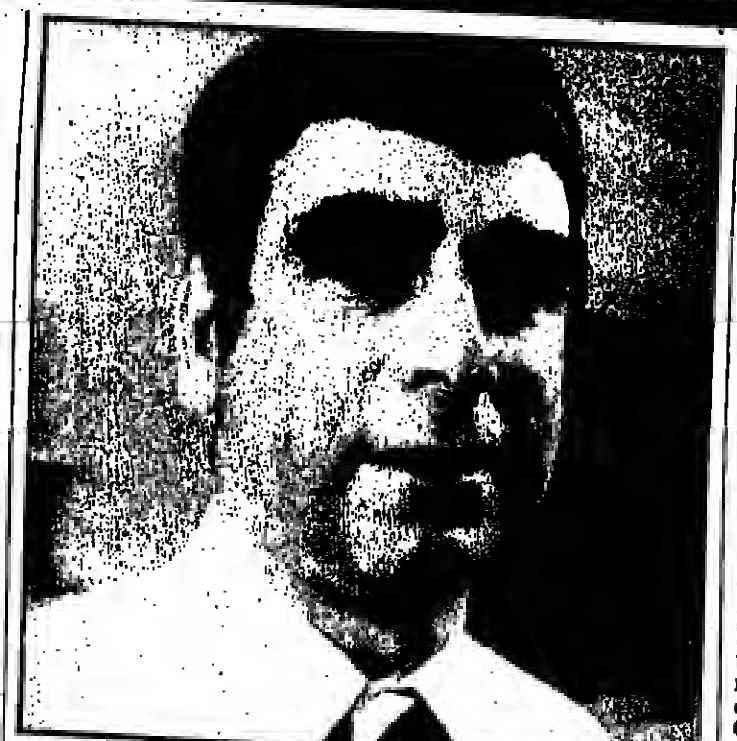
A MAJOR US database management system which has made a big impression with private British companies could be about to break through into the public sector.

The system is Focus, which was developed by Information Builders of New York during the mid-Seventies. Since 1976 it has been offered in this country on a bureau basis by Tymshare. In 1981 Tymshare's sales director Peter Scawen left to become managing director of IBI's offshoot Information Builders (UK), which has been selling Focus as a package.

Now the system has been adopted by London bureau SIA, which is owned by the French government's CISI bureau. Scawen said that SIA would be a valuable new outlet for the system, since SIA has been strong in the public sector over the past decade.

SIA has traditionally been linked to Control Data machinery, but has recently shifted its policy towards IBM. This month Focus is being launched on SIA's new IBM 3032 mainframe, running under TSO/MVS.

Tymshare's version runs under TSO/MVS, so there will be no head-on clash. With 500 users worldwide, Focus is, like its rivals Mathematica's Ramis and CSS Nomad, built on to IBM equipment. Scawen sees this as no obstacle to his aim at getting Focus into the government sector. "Two things will work in our favour," he said. "One is the opening up of procurement policy, which will let in foreign multi-nationals' computers to government departments. The other is ICL's introduction of IBM-compatible mainframes."



McGLADDERY . . . We will stick with DEC.

Filetab stays with DEC

SPECIALIST software house Filetab Support is to stick to working on DEC hardware.

Ritchie McGladdery, Filetab managing director, said: "We are often asked if we are going to shift to other hardware and have been approached. But I think the answer has to be that we will stick with DEC for the foreseeable future."

McGladdery was speaking at the launch of Filetab's latest software tool, RIL (Rapid Interrogation Language), an online interrogation system which runs on the DEC range from the professional micro to large Vax systems.

Filetab claims the system is designed to be used by novices and

non-computer professionals and that half of its 300 current users have expressed an interest in RIL. The interrogation system provides a method of "browsing" through files and selecting and processing individual pieces of data online.

McGladdery said: "It is basically a way for computer departments to get the users off their backs. With a terminal the users can check up on things like outstanding invoices from Yorkshire DP installation. And the users get the benefit of having information when and where they want it."

RIL is a read-only system with extensive security features including a full password system.

Televideo to offer 15% of stock for a record £112m

THOSE who thought Clive Sinclair's overnight conversion to a value of £135 million was spectacular, should prepare themselves for what Philip Hwang of Televideo hopes to achieve soon.

US brokers L. F. Rothschild, Unterberg Towbin, in association with Robertson Coleman and Stephens and Shearson American Express, are planning to offer just 15% of the Televideo stock for a record £112.5 million.

After the offering Hwang will still own 68% of Televideo, and that will be worth about \$450 million.

The company is only six years old having been founded in 1977 and it had sales of under \$1 million in that year.

By 1980 turnover had shot up to \$12.6 million as Hwang expanded his product lines and consolidated the business, but the spectacular growth came between 1981 and 1982, when turnover tripled and Televideo ended 1982 with sales of \$98 million.

Profits have grown alongside revenues to reach \$12.7 million in 1982.

Televideo is best known as a terminal manufacturer and supplier, but has recently been building and supplying a range of 8-bit and 16-bit small business systems.

From the offer document produced for the share placing it is clear that the amplification of the



HWANG... To join the instant millionaires club.

Televideo lines with the small business systems is what has given the company its sudden access to a 200% growth path.

Between 1979 and 1982 Televideo shipped over 200,000 terminals and Hwang reckons the company is now the leading supplier of terminals to the non-IBM marketplace.

According to Hwang the company has now shipped a total of 20,000 micros, and the pace of shipment is rising dramatically.

It took 18 months to ship 20,000 micros, but in December alone the company shipped 10,000 terminals

and 3,000 micros.

Hwang says that in 1983 revenues from the micro sales will exceed revenues from the sale of terminals.

And Televideo has benefited from Hwang's Korean background. According to the prospectus Televideo's success arises from simple, easy-to-service designs, with most of the production carried out in Korea.

The prospectus carries no forecasts, but analysts in New York expect Televideo to maintain growth it has already achieved, maybe even better it.

Dragon fires up for bigger profits

A FORECAST turnover this year of £35 to £45 million will make Glamorgan-based Dragon Data one of the largest microcomputer companies in the UK to date.

The forecast is based on current production of over 4,000 eight-bit Dragon micros each week, and demand which Dragon managing director Tony Clarke describes as "insatiable". Sales for Dragon — part of which was sold off by parent Mettoy last year — were £3 million to the end of December 1982.

The company has not released official figures yet, but Clarke suggests that profit for last year will be between £200,000 and £300,000. He believes that profits of between £3 and £4 million are possible for the coming year.

Growth at this speed would place Dragon in the forefront of successful British micro companies and would even outpace the record set by the Osborne 1 of going from zero to \$70 million worth of sales in 14 months. Only Apple in its early days equalled this kind of running. But the success of Dragon is likely to add further fuel to ill-feelings in the City over Mettoy's sale of the company.

Mettoy, which had turnover of £25 million last year mostly in toys, had losses of £2.7 million in

1981 and admitted losses for 1982 of £3.6 million.

Last December Mettoy sold 81% of Dragon for just £900,000, although the company retained the right to buy back 17% of Dragon at the price it sold the shares.

The row over the sale centred on the fact that a number of City financial institutions felt that Mettoy sold out too cheaply — and at the wrong time. However Chris Radmore, the broker handling Mettoy's affairs at stockbrokers L. Messel and Co, said that there was no way Mettoy could afford to provide the money for the Dragon development. Messel is currently handling a cash-raising exercise by

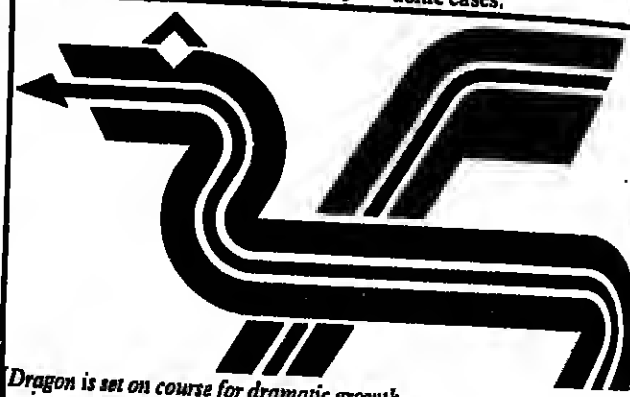
Mettoy, aimed at securing funds of £3.7 million for the

Radmore said that so far the stock with no problem placing.

Clarke says that Dragon is Mettoy's best asset and that it is a surprising Messel has had no problem finding takers.

A rough calculation based on probable profit at Dragon's million would make 33% of stock worth about £10 or £11 million, on a conventional basis valuation of the company at eight times annual earnings.

In practice valuations have been very much higher than in some cases.



Dragon is set on course for dramatic growth.

US analysts recommend Comserv

IN LINE with forecasts by Comserv president Ted Priem of turnover this year of \$40 to \$50 million, American analysts are recommending the company's shares to their clients.

Priem made his prediction when he was in the UK recently to launch the Comserv MRP11 Manufacturing Resource Planning software and to announce a series of large orders for the product.

The new orders are for the complete Comserv Advanced Accounting and Production System which will be installed at German chemical giant Hoechst.

So far Comserv Europe has sold over \$3 million worth, more than the entire company sold in its first three years in the US, according to Stewart McIntosh, Comserv European vice-president of sales.

In 1981 Comserv had a total turnover of \$17.6 million and for 1982 that figure is expected to be \$24 to \$25 million.

The analysts at US stockbrokers Shearson American Express forecast that that figure will rise to

\$41 million for 1983 and to \$48 million by 1986.

While growth at Comserv has outperformed the software industry norm of 19% over the past five years, profits trailed slightly in 1981.

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

London Stock Exchange			France		US Stock	
1983			1983		1983	
High	Low	Stock	Price	Change	High	Low
248	243	ACT (App Comm) (200)	285	+10	43 1/2	42 1/2
107	105	Acorn (200)	107	+10	24 1/2	24 1/2
107	105	B. & W. (200)	107	+3	24 1/2	24 1/2
107	105	Cambridge	107	+10	24 1/2	24 1/2
107	105	C.A.S.E. (200)	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-40	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1/2
107	105	Cambridge	107	-8	11 1/2	11 1

Making the most of an emergency

IT IS nice to see that the series we published on computer disasters has not been ignored by the industry. Several disaster recovery services have been set up, and recently two more joined the throng.

They serve different sectors of the market, one from Anglo American Computing Services being aimed at minicomputer users.

The other, a multi-million pound joint venture between BL Systems and Atlantic Computer Leasing, Europe's largest IBM leasing house, is aimed at mainframe IBM users.

The difference in scale of the two services is reflected in the mode of operation. Anglo offers a mobile recovery service, damaged hardware being replaced with the nearest equivalent on-site. The service was launched late last year with a Hewlett-Packard 3000. Two Digital Equipment PDP-11s are on order, with Vax to follow later and IBM 4300 Series after that.

"We have had a lot of enquiries from IBM sites," says Anglo's managing director Peter Maxwell Jones.

Users subscribe to the Anglo service for £2,000 a year in the case of Hewlett-Packard hardware, or £2,400 if they want the DEC PDP-11 cover. This price includes an insurance policy supplied by Eagle Star to cover transport and other costs.

The BL service, being for much larger hardware, is necessarily more mobile and more expensive. So it cannot cover when a computing facility is needed on-site such as for some real time applications.

But it is comprehensive, and fast to enact, with BL guaranteeing an almost immediate transfer of service to its site when a client's computer fails. So far the service, called Failsafe, has an IBM 3033 AP, and there are plans to install a 3081.

Prices range from £40,000 a year for a limited service, to £120,000 for full cover.

For this the user gets consultation on telecommunication needs, and a trial to show that the system works. "They know they've got a working service when

they sign the contract," says Failsafe consultant Colin Berthelsson.

Failsafe provides the user with a parallel computing service with transfer of files taking a matter of moments. The user then has the IBM mainframe with several thousand square feet of computer room floor dedicated to his processing.

Meanwhile Anglo has dealt with its first live disaster. Market Locations of Leamington Spa had its solitary Hewlett-Packard 3000 Series 44 scorched by arsonists on January 17, with disc drives burnt out.

The computer was a vital part of the consultancy service. Several applications included calculating how salespeople should best organise their visits, and making statistical analyses.

Anglo sent in its HP 3000 Series 3, a machine compatible with the 44. Well, almost compatible — there were a few teething troubles. And Anglo found a sad lack of emergency lighting in its van, so had to use torches to unload the hardware.



Computers are playing an increasingly important part in rural Australia.

Farmers beat the drought by computer

AUSTRALIAN cattle farmers, reeling under one of the driest autumns since their ancestors departed from Britain a long ago, but the effects are being mitigated by computer programs developed at Melbourne University for analysis of herd data.

Farmers can receive advice on the feeding requirements of their herds, as well as breeding and health hints by submitting monthly reports on the condition of their cows.

"It costs the farmer A\$150 to join, and A\$150 per cow a year," says Dr Lance Foster, a university department of veterinary clinical sciences. "After years he is receiving a return of about A\$7 for each cow."

In fact computers are used like wildfire through Australian agriculture. There is a project to computerise milk production, also a videotape system bringing market information to farmers.

Meanwhile Australia's agricultural data processing bureau ABRI has attracted clients since its birth early last decade.

PEOPLE



Baynon

Managing director for Micom-Borer

MICOM-BORER has promoted its technical director, Ken Baynon, to managing director. He has been with the company for five years, joining as technical manager prior to the merger of Borer Electronics with Micom Systems of California. Last year he held joint responsibilities of technical director in the UK, and those of developing the recently-launched Micro 4000 high speed modem

range in California.

Before joining Micom-Borer he spent five years with Rascal Milgo as UK engineering manager. Prior to that he worked in design and development at GEC, specialising in satellite communications.

Micom-Borer was formed in 1980, following the merger of modern manufacturer Borer Electronics and communications giant Micom Systems.

Neil Bapty and Kevin Hayes have joined datacommunications company Xtec, formed five months ago to bring commercially viable ideas from this country's universities to the general marketplace. Bapty, who has worked in datacommunications design with Plessey and Rascal Milgo, has been appointed product development manager. Hayes, who has been appointed UK sales executive, previously worked in the installation of datacommunications and protocol conversion equipment.

Edward Pleken (below) has been promoted to director, Media, at Memorex. He was previously computer media sales manager.



Donald Absalom (right) was one of four winners of Texas Instruments 994A home computers offered as prizes in a competition held by TI at the recent Which Computer? show. Absalom, who is assistant chief architect with Cambridgeshire County Council, is seen receiving his prize from Paul Beard, TI national sales manager for the company's data systems division.

Dynabyte Business Computers has appointed Roger Chalke as European marketing manager. He joins the company from Rair, where he was US sales manager, marketing the Rair Black Box III microcomputer.

BIS Applied Systems has appointed two principal consultants to be responsible for the company's new computer aided learning division. Stephen Helms and Peter Corthine will market and develop the new product range of BIS-Cal training packages.

Paddy Sandford-Johnson, a computing and high technology executive search consultant, has joined Amrop International as partner and director from Canby Bowen & Associates.

Karl Karlstrom, assistant vice-president and senior editor for computer science and applied mathematics at book publisher Prentice-Hall, has been awarded the ACM (Association for Computer Machinery) Award for outstanding contributions to computer science and education.

Lionel Greeo, who was managing director of Grandmet Information Processing from 1973 to 1980, has been appointed associate director of AGS Recruitment.

Dr Dale Martin, senior lecturer in mathematics at Hatfield Polytechnic, is to join the staff of the Charles Babbage Institute as associate director. His duties will include working with archival and database analysis programs.

Professional systems division of AIM has appointed Karl Keagar as sales manager. He joined the company in 1981 as Southern sales executive.



Howard Hickling has been appointed sales engineer, Midlands and the North, at Dowry Circuits. He was previously with Welwyn Electric.

Jayne Gull (above) has joined Cars Consulting as technical consultant, manufacturing systems. For the past three years she has worked for Hoskyns as a programmer, technical consultant and project controller.

Prime Computer has expanded its UK sales force with two new appointments. Adrian Coppola, who joins the North-east and Scottish branch, was formerly with NCR. Senior sales executive for oil sales is Peter Irwin, who was previously with Konaberg.

Micro Memory Systems, part of the Grundy Group, has appointed three new members of staff. Larry Allen has been appointed sales manager. He was formerly with Pertec International. Kevin Cheeseman and Simon Kay will be working in complementary roles as software systems engineer and hardware systems engineer. Cheeseman was previously with Aydin Controls and Kay joins from Pericom.

Floyd Kvamme has been named executive vice-president, marketing and sales, for Apple Computer in California. He was formerly president of National Advanced Systems.

Data General has reorganised its marketing function. The department now includes marketing specialists responsible for products, applications, OEMs and communications. Its functions will include the independent software vendors programme. Bill Cadogan (above) has been appointed marketing manager. He will also continue to take responsibility for systems engineering.

New manager of Prolog Systems' IBM division is Jim Trussion. He was formerly a senior manager with Marcol Computer Services.

Management consultancy firm Howard Tilly Associates has appointed Richard Spooner and David Farnas as directors. Spooner has been chief accountant and financial controller at the Yeoman Aggregates group of companies for the past three years. Farnas qualified as a chartered accountant with Howard Tilly in 1975.

Package Programs (PPL) has appointed Ken McNaughton as sales executive and Richard Tibbels as marketing support consultant at its decision support systems division. McNaughton joins from ICL, where he spent the last 12 years in software marketing. Tibbels was formerly with Applied Data Research, where he was in sales.

DIARY

FEBRUARY 27-28
Meeting: BCS Primary Care group, Royal College of General Practitioners. Details from Dr Mike Sheldon on (0602) 700111.
MARCH 1
IDPM examination syllabus. IDPM Birmingham branch, New Imperial Hotel, Temple Street, Birmingham. 7.30.
MARCH 2
Budget preview — more work on IDPM Central London branch. IDPM West London to Oxford branch. Bull Hotel, Gerrards Cross. 7.30.

CONFERENCES

EXECUTIVE and Professional Training is holding a seminar aimed at increasing success and effectiveness. Key topics are the individual's goals and attitudes and how to transform them to achieve what the individual wants; although the following will also be covered: Increasing productivity; more successful selling; increasing creativity; more effective communication; and being more relaxed and at the same time more effective. The seminar lasts four days and costs £400 + VAT. It will be held at the Kensington Hilton Hotel from March 8-15 and March 24-31, and again in May and June. Details from the organiser on 01-455 4063.

ROMTEC and Interco Business Systems are holding a conference designed to help microcomputer dealers identify profitable vertical markets. The conference will be held on March 25-26 at the Heathrow Crest Hotel. Speakers are from IBM, DEC, ICL, ACT, CRA, Romtec, Computerland, Ashton-Tate and Interco. Details from Christine White on 01-948 3111.

There's life in the contract market yet

IMMEDIATE prospects look good for contract operators as agencies report 20% more placements than this time last year. The threatened extinction of mainframe computers will eventually diminish the market, but not before demand grows a little in sympathy with the rest of the industry.

"There are enough mainframes around to last us a few years," says Gary Totten, manager of operations for KPG Computer Services.

The view of Derek Peet, contract operations sales manager at agency giant VLI is a little less optimistic: "The market will decline — it has to. But the next year is looking healthy."

Peet thinks the field for contract operators has broadened. There is already less work on traditional mainframes, but so far that shortfall has been made up by more work on minicomputers like the Digital Equipment PDP-11.

People with good technical support skills can find work, as can IBM operators. But there are excellent ICL people who have been out of work for ages, Peet says. To be employable, the young contract operator should have a car and be willing to move anywhere at short notice.

With large machines, it is the peripherals that need operating



PEET... Field for contract operators has broadened.

rather than the central processor. VLI has an IBM contract in Warwick where the vast main computer room is empty and the contract operators busy themselves with printers and tape drives.

About half of all contract operators work as limited companies, which means that they pay their tax just once a year rather than having it deducted at source as PAYE. But few are paid directly by the companies or organisations whose computers they serve.

Instead they are paid by agencies which pass on to them about 70% of the fee charged.

The four main agencies for contract operators are VLI, KPG Computer Services, Trident and Knight Computer Services. Many other agencies no longer run a specialist operations division.

VLI says it has about 80 operators contracting at the moment. KPG cites a similar figure, and Totten estimates the total number of contractors now working at 350.

The contract market is seasonal though, with the hard core crusted with students, Australians and others during the summer for extra holiday cover.

Assembler system gives sales team maximum profit, minimum stock

TIME is relative, and five seconds can seem an eternity for a salesperson with an impatient customer waiting for a quote on the phone. Fast response is therefore vital for systems designed to give salespeople immediate information about stock levels.

The High Wycombe electronic components distributor Axiom Electronics knows this only too well. As a result it chose software written in assembler code for its stock control and information network.

Assembler is slow to write, but it still yields faster programs than those written in high level languages like Cobol.

The system is based on the Molecular Mark IV made by British Computers (BCL) which also supplied the skeleton of the software. Axiom then hired Record Software to tailor the system with

more assembler routines.

The system gives salespeople a terminal on their desks for quick access to stock levels and the state of customer accounts. As a corollary, information on fast and slow selling components is provided with the aim of keeping just the right amount of stock. In five words: maximum profit for minimum stock.

Marketing director Bill McKnight is delighted with the software especially, and says that apart from its speed it has the advantage that the same product cannot be sold twice during a hectic telephone selling session.

Surprisingly it can happen with other systems, McKnight explains, when two salespeople look up a particular line of stock at the same time. Both see that there is some left, and both sell it.

Axiom's software updates the

system the instant a sale is made and so a salesperson can feel self embarrassed by looking at a product, finding it is sold, and being unable to make the sale.

The diamond centre of Axiom is the Motorola franchise. Motorola agrees not to stock a brand of any component that makes. As a result 15,000 different Motorola components are listed in the Axiom computer, even though only 6,000 are usually in stock.

When a customer orders a Motorola component not normally in stock, the system indicates how long it will take for it to be ordered and delivered. Shadow stock is the name for such components.

Axiom stocks the products of other makers when there are Motorola equivalents. Suppliers for example and solder brand of soldering iron.

Sig/Net 202 does the dirty work in Sri Lanka

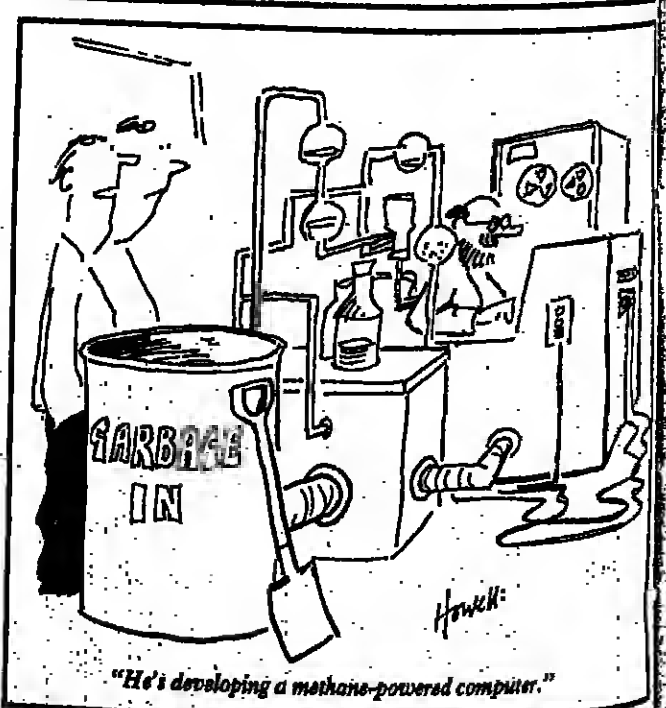
by John Riley
THE Shelton microcomputer Sig/Net 202's ability to survive months of use in dusty and muddy conditions on a London archaeological excavation, has led to its use by the Sri Lanka Ministry of Culture.

Dr Ian Graham, of the Institute of Archaeology in London, who is playing a key role in co-ordinating data entry packages in British archaeology, introduced the machine to Sri Lanka in January. It is now being used on a prestigious national archaeological programme and Wang is helping with the training.

Work so far has shown that the machine stands up not only to dust but also to heat, and another four to five machines are to be shipped out in June.

"We were looking for robustness," said Graham, "and the machine's peculiar mechanical design — with three loose circuits connected with a Sig/Net 202 (a 286 100 bus) — makes it easy to fix."

The Museum of London has been successfully using the Sig/Net 202 micros to record databases on the Saxon excavations at Billingsgate, in London.



"He's developing a methane-powered computer."

APPLICATIONS SOFTWARE WRITTEN IN C

Large Micro computer company wishes to distribute vertical applications and general business software written in C.

If your products can benefit from an outstanding level of visibility nationwide, and your software house is interested in the substantial financial rewards we're offering, then reply to

Box No. 1249 NOW!

The logical alternative

LOGIC analysers are the vital tools for ensuring that microprocessors have been correctly programmed for their destined task. The trouble is they are complex and expensive.

That was until a Plymouth Polytechnic student, Charles Thompson, decided to do something about it. As part of his undergraduate project, he designed a cheaper alternative — and picked up a £300 cheque for his trouble from the Mullins Design group as one of its annual award winners.

PUZZLER

I HAVE before me an equilateral triangle, drawn on a sheet of paper. On it, I have marked a point 3cm from the top of the triangle, 5cm from the bottom-left corner, and 7cm from the bottom-right corner.

What length is the side of the triangle? See page 45 for solution.

A new star is born



pulsar

16 BIT BUSINESS SOFTWARE

PULSAR business software is the creation of ACT — the company behind the Sirius 1 and recognised leader in 16-bit personal computing. The new PULSAR range, developed by ACT at a cost in excess of £1 million, takes full advantage of the power and expandability of 16-bit computers.

It is inherently faster and more powerful than traditional 8-bit software. And it is a true 16-bit range designed and developed by ACT's own software engineers.

For more information on the new PULSAR Range clip the coupon and return to
ACT (Pulsar) Ltd
FREEPOST, Birmingham B16 1BR
or call
021-454 8585

THE PULSAR RANGE			
Sales & Finance	£195	Inventory Data Base	£295
Purchase Order	£195	Microcomputer	£295
Customer Order	£195	Superdisk	£295
Payroll	£195	Mailman	£195
Stock Control	£195	Warehouse	£295
Time & Cost	£195	Sales	£295
Data Analysis	£195	Mail Merge	£195
		DBase III	£295

AVAILABLE NOW FOR SIRIUS — IBM PC and DEC Rainbow coming soon.



Just fill in & return to ACT

A City Gent with all the panache of a politician

CHRIS GENT is just a little too neat and clean cut for the computer industry.

But he is just what you might expect an ex-chairman of the Young Conservatives to look like: dark, well groomed hair, smooth and attractive features, the obligatory pin-stripe suit.

There is no impression, so common in the industry, of the bourgeois cloth trapping a wild soul, just waiting to escape into jeans, jeans boots and beads.

Yet his industry credentials are impeccable. He has emerged at 34 as managing director of that long time joint backwater belonging to ICL and Barclays Bank, Baric Computer Services.

Prior to his emergence in the hot seat of what used to be Britain's biggest batch processing bureau, he worked in the computer division of bankers Schroeder Wagg, and before that he was at NatWest Bank.

He has survived from it all remarkably unscathed and even wears his former political background with panache, approaching publicity with the eagerness of a public figure.

On the morning of our interview *The Times* had profiled him mostly as a politician, which led to the obvious question: Would he go back to politics?

DOWNTIME

Who's interested in IT?

TO discover what impact information technology has had upon laymen and women, *Computer Weekly* has stooped to stopping people in the street.

I admit we only asked five people, but my gut instinct tells me that they happened to be the right five. Only one knew what IT was.

The reason for this ignorance is, of course, that the mass media find the subject tedious and boring — unlike us here at *CW*.

The *Daily Mirror*, for example, has a perfectly competent technical journalist who occasionally turns up at Press conferences. But he might almost as well not exist, since he hardly ever gets any space in the paper.

Still punching

ONLY days after reading in a dictionary of computing terms that punch cards are "virtually obsolete", I was faced with trying to get hold of some for a display.

As this proved to be no easy task, I began a process of elimination, working out where "obsolete" equipment was still likely to be used routinely.

So, I rang up my old University Computing Centre where I found hundreds of happy users contentedly punching cards.

No, not now, he said, and continued: "It's very rewarding and challenging to be in business during a recession."

In politics, Gent said, merit and achievement are much more chancy. In business you can make a decision and really motor.

So far he's definitely doing that. Two years ago Baric was 90% batch bureau with little or no growth showing in either profits or sales. Now, Gent claims, Baric has batch processing as 50% of the business with the balance spread out in real time processing, software production, and facilities management.

In the course of further developing Baric as a market research and clinical trial tool for pharmaceutical companies, Gent hopes to create a significant role for Baric in the health care field.

All this should push Baric to turnover of £15 million for fiscal 1983, compared with £13 million in 1982, according to Gent.

He spoke at some length of Baric's role as the biggest vendor in the country of ICL's DRS distributed network system.

Baric, Gent noted, is the largest trader within the Tradepoint network, though it does deal at arm's length with ICL.

This posed a question which brought Gent's political skills to the fore as nowhere previously in the interview.

"Why," we asked, "do you not take the currently fashionable route and buy yourself out of the clutches of ICL and Barclays?"

With what can only be described as an air of well managed shock, clearly implying that this was not quite the right kind of question, Gent stared the questioner, and the question, straight in the face.

He then moved the discussion to more mundane topics such as market share, the need for standards, and so on, without giving a clue as to what he would feel like as the managing director of an independent, quoted company.

As an industry we must respond quickly to the changes in technology. Failure to do so will result in products which are being developed in the UK and being publicly claimed as 'significantly

ahead of the market' being undercut by imported systems for some time.

Calls for import controls are best made and only serve to highlight the weaknesses of our manufacturers.

How can one react to changing technology?

1. Look to establish a career in growth areas. If your sector of the industry is not growing, the sooner rather than later you will be threatened.

2. Keep yourself fully informed of the latest developments in technology particularly in hardware and question how they will affect you.

For example, what effect will the following have: 32-bit microprocessors which output current 32-bit mini-computers; availability of low-cost 256 K memory chips; the development of high capacity high performance low cost fixed discs.

Similarly for software: AI; Unix dominate the market; if you believe so — what are you doing about it? How do CP/M, MS-DOS compare? Which will come more significant? What opportunities do they offer?

If you cannot get your organisation to react positively to these developments then change your job.

Alternatively you can take a step to establish your own company. Though if you are married, keeping your partner working so that you have a regular income is vital.

Some points to consider are:

1. Do not go to your bank manager expecting an unsecured loan. He joined the bank to have a safe career. He might be interested in high technology, but he certainly won't risk his career backing it.

2. Look at the changes that are taking place, and evaluate how you can exploit them. Can the work you have previously done be applied to these developments?

3. Venture capitalists in the UK tend to be conservative in mobile investments. As a result they are much-maligned, sometimes quite rightly, but there are other sources of finance available for new companies, for example, the Software Products Scheme and the Microprocessor Applications Project. Also the DoI-backed small firms loan guarantee scheme, though it has been widely abused, is still a source of finance.

4. Make sure your proposal is a well produced professional document.

5. Aim to run a company which adds a significant value to the products it sells. It is far easier to run a company with a small turnover which has a significant added value than one with a large turnover and a small added value.

6. Do not compromise on quality. Always aim to provide the best service and product, so that your customers are willing to pay for it.

7. Join a group, such as the CPW User Group or the European User Group which enables you to become better known in the industry and to be able to operate with other companies rather than compete.

If you are not prepared to react to the changes in the market then despite having a boring career, your job security will in all probability be a good deal less than those who are prepared to exploit new technology and as a result have an exciting and interesting career.



GENT . . . "Rewarding to be in business during a recession".

the fore as nowhere previously in the interview.

"Why," we asked, "do you not take the currently fashionable route and buy yourself out of the clutches of ICL and Barclays?"

With what can only be described as an air of well managed shock, clearly implying that this was not quite the right kind of question, Gent stared the questioner, and the question, straight in the face.

He then moved the discussion to more mundane topics such as market share, the need for standards, and so on, without giving a clue as to what he would feel like as the managing director of an independent, quoted company.

As an industry we must respond quickly to the changes in technology. Failure to do so will result in products which are being developed in the UK and being publicly claimed as 'significantly

ahead of the market' being undercut by imported systems for some time.

Calls for import controls are best made and only serve to highlight the weaknesses of our manufacturers.

How can one react to changing technology?

1. Look to establish a career in growth areas. If your sector of the industry is not growing, the sooner rather than later you will be threatened.

2. Keep yourself fully informed of the latest developments in technology particularly in hardware and question how they will affect you.

For example, what effect will the following have: 32-bit microprocessors which output current 32-bit mini-computers; availability of low-cost 256 K memory chips; the development of high capacity high performance low cost fixed discs.

Similarly for software: AI; Unix dominate the market; if you believe so — what are you doing about it? How do CP/M, MS-DOS compare? Which will come more significant? What opportunities do they offer?

If you cannot get your organisation to react positively to these developments then change your job.

Alternatively you can take a step to establish your own company. Though if you are married, keeping your partner working so that you have a regular income is vital.

Some points to consider are:

1. Do not go to your bank manager expecting an unsecured loan. He joined the bank to have a safe career. He might be interested in high technology, but he certainly won't risk his career backing it.

2. Look at the changes that are taking place, and evaluate how you can exploit them. Can the work you have previously done be applied to these developments?

3. Venture capitalists in the UK tend to be conservative in mobile investments. As a result they are much-maligned, sometimes quite rightly, but there are other sources of finance available for new companies, for example, the Software Products Scheme and the Microprocessor Applications Project. Also the DoI-backed small firms loan guarantee scheme, though it has been widely abused, is still a source of finance.

4. Make sure your proposal is a well produced professional document.

5. Aim to run a company which adds a significant value to the products it sells. It is far easier to run a company with a small turnover which has a significant added value than one with a large turnover and a small added value.

6. Do not compromise on quality. Always aim to provide the best service and product, so that your customers are willing to pay for it.

7. Join a group, such as the CPW User Group or the European User Group which enables you to become better known in the industry and to be able to operate with other companies rather than compete.

If you are not prepared to react to the changes in the market then despite having a boring career, your job security will in all probability be a good deal less than those who are prepared to exploit new technology and as a result have an exciting and interesting career.

PLATFORM

Eddie Bleasdale is managing director of Bleasdale Computer Systems

Security at work is a myth in the computer industry

THE rate of change in the computer industry is so fast that job security is a myth. Developments in technology can be seen either as an opportunity or a threat.

Too many people in the industry choose to ignore these changes and hope that if they keep a low profile then new technology will disappear and not affect them.

Well, it won't. Over the last few years, the 8-bit personal microcomputer has become the biggest growth area in the industry, and the new generation of 16/32-bit microcomputers which outperform machines costing several times their price, will reach those parts of the market other micros have not been able to reach.

The reluctance or inability by people in industry to evaluate how these developments will personally affect them is possibly this country's single biggest weakness.

It is significant that in California there is considerable pressure on people in the computer industry to establish or work in high technology companies. No such pressure exists in the UK, and the blame is generally laid at the door of venture capitalists. This is not altogether fair.

As an industry we must respond quickly to the changes in technology. Failure to do so will result in products which are being developed in the UK and being publicly claimed as 'significantly

ahead of the market' being undercut by imported systems for some time.

Calls for import controls are best made and only serve to highlight the weaknesses of our manufacturers.

How can one react to changing technology?

1. Look to establish a career in growth areas. If your sector of the industry is not growing, the sooner rather than later you will be threatened.

2. Keep yourself fully informed of the latest developments in technology particularly in hardware and question how they will affect you.

For example, what effect will the following have: 32-bit microprocessors which output current 32-bit mini-computers; availability of low-cost 256 K memory chips; the development of high capacity high performance low cost fixed discs.

Similarly for software: AI; Unix dominate the market; if you believe so — what are you doing about it? How do CP/M, MS-DOS compare? Which will come more significant? What opportunities do they offer?

If you cannot get your organisation to react positively to these developments then change your job.

Alternatively you can take a step to establish your own company. Though if you are married, keeping your partner working so that you have a regular income is vital.

Some points to consider are:

1. Do not go to your bank manager expecting an unsecured loan. He joined the bank to have a safe career. He might be interested in high technology, but he certainly won't risk his career backing it.

2. Look at the changes that are taking place, and evaluate how you can exploit them. Can the work you have previously done be applied to these developments?

3. Venture capitalists in the UK tend to be conservative in mobile investments. As a result they are much-maligned, sometimes quite rightly, but there are other sources of finance available for new companies, for example, the Software Products Scheme and the Microprocessor Applications Project. Also the DoI-backed small firms loan guarantee scheme, though it has been widely abused, is still a source of finance.

4. Make sure your proposal is a well produced professional document.

5. Aim to run a company which adds a significant value to the products it sells. It is far easier to run a company with a small turnover which has a significant added value than one with a large turnover and a small added value.

6. Do not compromise on quality. Always aim to provide the best service and product, so that your customers are willing to pay for it.

7. Join a group, such as the CPW User Group or the European User Group which enables you to become better known in the industry and to be able to operate with other companies rather than compete.

If you are not prepared to react to the changes in the market then despite having a boring career, your job security will in all probability be a good deal less than those who are prepared to exploit new technology and as a result have an exciting and interesting career.

Psychologist George Kiss has won a £27,000 grant to programme a computer at Warwick University to "feel" emotion and "fall in love".

The Sun



Eddie Bleasdale

Computer Weekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 24, 1983

Why the winners have to go West

GO WEST young man! That was the cry of hope in America during the last century; for a few of the glittering prizes of UK computer companies it now may be the cry of despair.

The latest to go West, at least for finance, is Systime, the high-flying Leeds systems company which has seen its rapid growth overstretch its financial base. The move makes a lot of sense for Systime; the question is how much sense it makes for the UK computer industry.

The US Control Data Corp, which is to take a stake of over 30% in Systime, will provide valuable overseas marketing muscle for the UK company.

A cash injection of over £10 million in new money will also help Systime over the financial hurdle presented by its heavy expenditure on product development and a new factory.

The negative part of the equation is that one of Systime's major shareholders, the British Technology Group, would not provide the financial support that Systime needed. The BTG, set up to stimulate innovation, is now not even being allowed by the government to back a winner.

Earlier in the year it was Compeda, the BTG's computer aided design company, which was sold off to US company Prime.

The CDC/Systime deal is not directly comparable: BTG retains a stake — down from 29.5% to something under 20%; and Systime retains control.

As we said, for Systime it makes sense. But the way the deal came about doesn't say much for the UK's commitment to its home-grown industry.

Restricted software

IBM took a leaf out of the independent software companies' books with the decision to stop supplying source code on some of its products. And the move could have far-reaching effects in the software business.

It seems the decision was prompted by two major factors: the sheer complexity of the source coding for MVS, IBM's large machine operating system, and its associated program products. National Advanced Systems estimates that the amount of coding associated with MVS has tripled over four years.

"The task of updating all of this is awesome for IBM," said one source.

The other reason smacks of something which IBM would not have done 15 or 16 months ago when the company was still under investigation by the US Justice Department: namely to put a damper on the activities of the independent software suppliers which rely on IBM's source code listings for a large part of their information about IBM products.

Both Amdahl and NAS agree that, as things stand, with only a few programs on the totally restricted list, the move will not affect them. But the number of products on the list will grow; this could affect both companies as they try to compete with IBM across a wider front.

One thing seems sure at the moment though — that the really large-scale products will not be added to the list. It is in these that users make the most modifications and IBM is unlikely to try to prevent them, unless it goes the whole hog and becomes purely a supplier of standard packaged systems — take 'em or leave 'em. That is not beyond the realms of possibility, but it is improbable.

At the moment it looks as though IBM is playing with an idea and saving itself some time and effort in the long term. Just where the idea will lead is open to speculation.

The first effect will be relatively small. But it is only part of the revolution taking place in the IBM software market: the company is at any moment due to start general availability of its flagship operating system — MVS/Extended Architecture. And, with it, a whole new charging system for software.

IBM might be aping the independent software companies at the moment, but when MVS/XA hits the streets those companies could be extremely worried if IBM takes too many leaves out of their book.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by M. E. Martin of Northolt, Middx., who writes:

"Psychologist George Kiss has won a £27,000 grant to programme a computer at Warwick University to 'feel' emotion and 'fall in love'."

The Sun

LETTERS

Talking books for blind Students in plea for jobs

THERE are now over 3,000 technical helpers looking after "talking books" for the blind in Britain but there are over 50,000 blind readers needing help — 4,300 of them are over 90 and we have as many as 150 over 100-years-old. Although we have a large number of helpers, there are still some 40 areas throughout the country where we are desperate for further helpers.

These volunteers come from a wide range of technically trained electrical or electronic engineers and each is able to look after up to ten or more blind people: to visit them when required and to assist in repairing generally minor defects to their sets.

Would you be prepared to give up some of your time for this work? The time involved probably does not exceed about one hour

per month for looking after six or seven blind people.

The blind have tape reading cassette-type playback units and are supplied with tapes from a large library in London. Help is needed to install these, initially by fitting a plug and by giving some guidance to the blind whose average age is over 70 and many of whom are very poor.

Those who are prepared to assist or would like further details should please write to me. Assistance would be very greatly appreciated.

D. FINLAY-MAXWELL
Honorary, Voluntary
Helpers

British Talking Book Service for the Blind
c/o John Gladstone & Co
Wellington Mills
Huddersfield HD3 3JH

I AM a sixth form student and frequently read the copy of *Computer Weekly* delivered in my computer science teacher. I am very keen on computing and I wondered if you could help me.

I have eight "O" levels including maths, computer science, physics and chemistry, all at grade B, and am at present taking three "A" levels (maths, computer science and physics). I would like a job as a technical systems analyst or some job involved with the electronics of the computer.

Can any of your readers tell me what are the best steps to take after completing my college course? Perhaps there are other young people wanting the same information so why not have a small area in *Computer Weekly* so that letters such as mine could be printed with a reply? I am sure this would be very useful to other students.

D. A. LEATHER
138 Moorwell Road
Seunthorpe
South Humberside

The Editor welcomes letters on subjects published in *Computer Weekly*, or on original topics.

A MAJOR COMPUTER EXHIBITION IN THE HEART OF INDUSTRIAL WALES.

COMPEC WALES

UNIVERSITY COLLEGE, CARDIFF MARCH 22-24, 1983

For the first time in March 1983 professionals residing in Wales and the West of England have an unequalled opportunity to see and compare the whole range of equipment and services available for today's specifiers and purchasers.

With over 70 stands showing a comprehensive range of mini- and micro-computers, small business systems, printers, software, terminals and other peripherals, telecom equipment, word processors — as well as the many ancillary services and equipment available — COMPEC WALES offers you the most effective way of bringing yourself up-to-date with everything the computer industry can offer.

Computer users, suppliers, systems and software houses, the OEM industry, consultants — and particularly those considering the use of a computer system for the first time, are all assured of seeing equipment relevant to their varied applications demonstrated by professionals familiar with your business in your area.

Apply for as many FREE advance registration tickets as you will need.

Clip the coupon NOW!

Applicants not accepted after March 7

COMPEC WALES is a Computer Weekly Exhibition.

Please send.....FREE advance registration tickets for COMPEC WALES to:

Name

Job Title

Company

Address

Return to: COMPEC WALES '83

Exhibitions Ltd.,
IPC Exhibitions Ltd.,
Surrey House,
1 Throwley Way,
Sutton, Surrey
SM1 4GG

S

Liveware
File
by
Don



Eddie Bleasdale

PREVIEW OF CAD NORTH

COMPUTER WEEK / February 24 1983

TO ANYONE primarily involved in the more regular side of computing - that is to say, manipulating numbers and words - looking at the field of computer aided design (CAD) is like being given a sudden peek into a can of worms. And trying to say whether this particular can of worms is being handled correctly by the government is correspondingly difficult.

The problem lies in the messy nature of CAD itself. Everyone knows that computers can be made to handle images and, therefore, design work. In fact, most people could, at a pinch, knock up a bit of a graphics package on their own machine.

Things start to get messy when these graphics - maybe intrinsically nice - have to be made to do something useful, such as helping the industrial user to make something and, ideally, making it at a profit. And that is an indescribably messy pass to come to, simply because the path to marketable products is not a nice, tidy route of the sort that normally inhabits the computer itself.

Consider the history of the best. It started, back in the 1950s, in a number of isolated areas. There was CAD proper, in which computers were used to help draughtsmen. There was CNC (Computer Numerical Control), in which computers were used to control production equipment. And, later, there was CAT (Computer Aided Test), in which computers were used to assist in testing the finished products. And, later still, CNC became CAM (Compu-

CAD North opens next week. Here Chris Naylor looks at government aid

A range of schemes to help spread the word

ter Aided Manufacture), in which computers really got in on the process of production. So much for the technological skim through history.

But imagine what it might be like if all of these things were tied together in an integrated whole.

Your firm wants to produce a product. So design it using CAD. In the process of doing that a database is built up which contains an exact specification of the items to be manufactured. So use that database to drive the CAM side.

Ideally, at every CAD workstation there could be a little button marked "Build It" which is pressed when the CAD is complete and which starts the CAM rolling. And, as the finished product drops out of the jaws of the CAM device, it might as well be picked straight up by the CAT device which, using again the CAD database could, in theory, carry out a complete computerised test of the finished product to make sure that

this product is what was wanted in the first place. And, if any problems occur as the product goes through this cycle, they can always be fed back into the original CAD database in the designer.

And while all this is going on the few human beings in the place sit around their terminal drinking tea and watching another computer which, from the same database, is working out how much profit everybody is making.

The only snag with this scenario is that no-one can put it to effect as yet. The problem is: How can we get from where we are now to this Utopia? And how can we get there faster than, say, the Japanese?

If the government could lay down a route from here to there, its record on CAD would be excellent.

But the government has not laid down any such route, because routes are things you lead inert objects along. And the objects to travel down this route are the many thousands of firms that make up UK industry. The object of the exercise has not been to stand in front of these firms pulling them along, but to stand in parallel with them, trying to provide help as they travel under their own steam.

This help has fallen into four broad categories: seminars, demonstration centres, consultancy and capital.

First a company might express some initial interest and want to know a little more about CAD - so give the relevant staff a one-day seminar. That whets their appetite, so let them go to a demonstration centre to play with some CAD kit. At this point they're getting really interested, so let them have a

consultant to work out what they might do in their own firm. And then, to help them buy, give them a capital grant towards the cost of the new kit.

At that, the schemes seem pretty straightforward. And it could, possibly, be argued that to look at it more closely only blurs that nice four-step initiation process. But to give a few names and numbers, the two main schemes are CAD/CAM (Computer Aided Manufacture) and CADMAT (Manufacture and Test). Basically, both schemes were set up by the Department of Industry during IT82 and are to run for a total of three years. CAD/CAM tends to concern itself with the "heavy" engineering side and CADMAT tends towards the electronics side. This split is emphasised by the involvement of the Institution of Mechanical Engineers (IMEchE) in CAD/CAM and the Institution of Electrical Engineers (IEE) in CADMAT. Funds put aside for the schemes were £6 million for CAD/CAM and £9 million for CADMAT.

A further £12 million over two years has been allocated to assist firms in purchasing equipment with grants of up to one-third of the total cost being made to cover hardware, software and consultancy. In a way, the organisation of the schemes is probably more difficult to understand than the schemes themselves. For instance, if a firm was going for an integrated CAD approach, as per the pipedream, it would probably begin to come under the wing of FMS (Flexible Manufacturing Scheme) with its set of aids and grants. And if a firm wanted to develop CAD kit it might well come under the wing of SP8 (Software Products Scheme).

with its aids and grants. And if a firm whispered the word "microprocessor" in the hearing of the DoI it would probably never recover from the full weight of money thrown at it.

But the fact remains that, despite the many names, the concepts of help are simple enough because they are all based on a process whereby an interested firm would only have to make one phone call to any part of any of these schemes and fairly well-committed people will start to channel them around until they fall into a helpful slot. And, at that stage, it isn't so much what the schemes are called, or how they're formally organised, so much as whether or not they work.

Brian Gott of the Computer Aided Design Centre at Cambridge (CADCentre) appears nicely detached in his views on government aid given that the CAD Centre is DoI-funded.

"One is always a bit torn about government help," he says. "Some argue that it softens people, that they should stand on their own two feet, but this time around we're getting a lot of feedback from people saying it's just what's wanted. The government seems to be doing about the right amount. People never like to admit what they don't know - they like to be able to come somewhere where nobody's trying to sell them anything, but there the staff know what they're talking about."

Some useful names and numbers

THERE are a number of places you can go to find out more about CAD under the government's awareness schemes. But whichever number you ring, the person at the other end should be able to point you in a suitable direction.

CADMAT general information, IEE 01-240-1871
CADMAT demo centre, IEE Hitchin 0462-53331
CAD/CAM general information, DoI 01-212-5789
CAD/CAM demo centres:
Birmingham, Hugh Humphries 021-327-3401
Manchester, Mike Looney 0625-25421
Cambridge, Dennis Payne 0223-63125
Newcastle, Jim Thompson 0632-625242
Glasgow, Dick Simm 03552-20222
Capital equipment purchase scheme, DoI 01-213-7404

That is largely what is going on under the government's schemes - the seminars, demonstration centres, consultancy (not to mention the money) come from knowledgeable people with no particular axe to grind.

"It is a practical thing; they try things out for themselves. It's like buying a car - you want to try it out to see what it does," says Gott.

This is where the value of the demonstration centres comes in. Impartial places where someone can "try things out at a reasonable, unpressured pace".

Gott's views are echoed by Dr Elizabeth Laverick, IEE project director for CADMAT. "It's not just the suppliers who can pressure on," she claims, and lists that many pressures come from within the potential user's firm.

For example, Laverick outlines a situation in which a potential CAD user is under pressure from, say, his parent firm to adopt a particular CAD approach. This may be to bring him in line with overall corporate policy, although the corporate approach may not be suitable for the user's activities.

Of those who attend seminars and demo centres about 40% are genuine naive users (or would-be users), about 20% are consultants, and about 40% are people with CAD systems which are not fulfilling their requirements.

The first group of people, says Gott, are "The reason they wave their problems around in the centre is because the vendors haven't solved them. This might not be the vendor's fault - the problem might be that of linking systems together and the vendors aren't really in that market. The vendors might just be selling a single module - even IBM doesn't always do a complete job of linking things." Needless to say, he sees this sort of high-level consultancy expertise as a growth area in itself.

PREVIEW OF CAD NORTH

Market growth brings wide range of design products to the show

CAD North exhibition will give many suppliers access to a new market . . . Boris Sedacca reports

THE GROWTH of the market for computer-aided design and manufacturing (CAD/CAM) has gathered such speed that a single exhibition held every two years is no longer sufficient for suppliers who wish to establish a presence in the field.

So the organisers of the CAD North exhibition decided to launch CAD North to allow exhibitors to reach their prospects more frequently.

CAD North takes place at the Bellevue Hall in Manchester on March 1-3 from 10am to 6pm on Tuesday and Wednesday, and from 10am to 5pm on the Thursday.

Minicomputer manufacturer Prime has made significant inroads into CAD/CAM, a development which culminated in the company's recent takeover of UK CAD specialists Competa. Digital Equipment looks set to become a serious challenger with its Vax range of 32-bit minicomputers.

Competa has the second largest stand at CAD North after McAuto and will now include exhibits from Prime.

The company's exhibits are aimed at three areas: first mechanical engineering with a product called Dragon, a two-dimensional draughting system; secondly, a Plant Design Management System (PDMS) for the petrochemical industry; and thirdly, integrated circuit design aids with a product called EDITE.

Competa played an important part in the CAD North organisers' decision to set up an exhibition specifically for the North. "The North has a lot of potential and we have many existing customers there," says Jane Feeban, marketing services co-ordinator for Competa.

"We felt that the CAD exhibition was predominantly attended by people in the South. I believe we will reach a market this year which we did not reach last year, particularly in the Midlands and in the North."

Versatec will show a range of electrostatic plotters including its Random Element Processor, a microprocessor-based device

which eliminates the host processing computing overhead previously needed for electrostatic processing.

With the VRP, a user can produce high quality drawings and reports on Versatec Electrostatic plotters quickly and with no more host processing than a pen plotter would need.

Also shown on the Versatec stand will be the 8236F 56-inch wide film plotter which allows drawings to be overlaid for applications such as mapping geophysical and business graphics, and the Model 430 offline plotting workstation, as well as three Model V-80 high resolution printer/plotters.

Imilac will demonstrate its Series 2 high resolution vector-refresh intelligent graphics terminal providing local hardcopy from screen. The system is based on an Intel 8086 microprocessor under firmware control in read-only memory (ROM) and 64 Kbytes memory for the display list with optional extra 128K bytes.

A light pen is offered as a standard feature with an optional tablet allowing parts of a picture to be deleted or moved without having to redraw the entire picture.

Benson Electronics has its own stand although many of its products can be seen as part of the other exhibitors' displays. Included with its range of electrostatic plotters will be a new machine called the Model 1565 drum plotter accommodating a single sheet size up to A0, which replaces the older Model 5342 but adds features such as a screen and keyboard for operator control at roughly the same price.

Norrie Hill will demonstrate three systems, although one of them, the Genie, will be a low key

affair according to sales and marketing manager Bill Reakes. "The Genie was previously called the Source 45, based on the Hewlett Packard 9845 desk-top computer. We are now pushing the software only at a price of £2,500."

"The software provides two dimensional draughting facilities with bill-of-materials processing, numerical control programming and finite element calculations."

Terminal Display Systems is well known in the North with its home town in Blackburn, Lancashire. The company will launch a low-cost desk-top engineering graphics terminal from Megatek, providing high resolution graphics in firmware at the terminal end.

With a resolution of 640 x 480 and operating at speeds up to 19.2 Kbaud, the 1650 is software compatible with the top-of-the-range Megatek 7600 and 7200 series.

The company has recently been appointed as a Motorola distributor and will run a piece of software called VERSAgraphic which it has developed with US-based Graphic Strategies on the Motorola Exor-macs microcomputer, featuring low-cost raster graphics and housed on a single printed circuit board.

Control Data plans to launch its new Integrated Computer-Aided Engineering and Manufacturing (ICEM) package, featuring new delivery systems, training packages and supporting professional consultancy services.

The company will run demonstrations of the ICEM/800 based on the recently announced entry level Cyber 170/815 via remote link to its North London ICEM centre. Also demonstrated will be a full curriculum of CAD/CAM training packages developed by Control Data for use on the Plato



Ferranti Ceteq will demonstrate its CAM-X computer aided engineering system on Stand 401.

CBE system. Cambridge Interactive Systems is featuring turnkey computer-aided design, draughting and manufacturing systems based on Prime minicomputers and its Medusa software. The company will illustrate applications in a variety of mechanical and electrical fields.

Ferranti Ceteq will demonstrate its CAM-X computer-aided engineering system, including the full range of applications software. The stand will feature a CAM-X

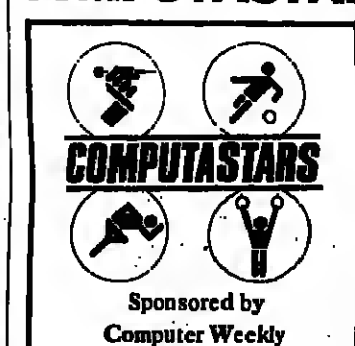
workstation, incorporating colour raster graphics display and connected online to a Digital Equipment Vax minicomputer.

Examples of CAM-X 2D design and draughting, 3D solid modelling, numerical control programming and records management software modules will be demonstrated.

Pragma will be showing the Chromatics CGC7900 and CG series colour graphics computers and the Trilog Colorplot printer. The

CGC7900 is designed for standalone use but can also be connected to a host computer. It features a 16-bit processor and a range of languages and software packages. Tektronix will be demonstrating its 2D draughting system based on 4054 desk-top computer. The company's display will also include the new 4691 colour hard copier using an ink-jet air flow technique and providing a resolution of 150 dots per inch, in conjunction with a Tektronix 4113 colour terminal.

COMPUTASTARS



Still time to shine in Computastars

ENTRIES are still open for Computastars - but only just. There's only one week to go and places are allocated on a first come, first served basis, so post off your form to the organisers quickly to avoid disappointment.

Full details of the competition can be found in the February 3 issue of *Computer Weekly*, or from the organisers at the address on the entry coupon.

Computastars is open to both men's and women's teams, each comprising between three and five members. Cost is £37.50 per team, with an additional payment of £20 for teams reaching the UK final. There will also be a charge for

teams going on to the European final, which will be announced when the location has been finalised.

The brawny types among you may be interested in the tug-of-war contest, run alongside the main competition. Called somewhat surprisingly Computastug, the event can be entered by teams of six men or women, as long as these entrants are not involved in Computastars itself. Entry fee for Computastug is £10. If you have any queries about Computastars, don't contact us at *Computer Weekly*. The man with the answers is Gordon Colina. Tel: 01-688 6690.

UK dates

Birmingham Saturday April 30
Enfield Sunday June 5
Enfield Sunday June 19
Barnsley Saturday June 25
Birmingham (UK final) Saturday July 23

COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastars/Computastug 1983 and would like to enter

Main competition Men's teams Women's teams
Small units Men's teams Women's teams
Veterans Men's teams Women's teams
Computastug Men's teams Women's teams

Names of team(s)

Company

Address

.....

Name of contact

Telephone Extension

Signature of DP manager or equivalent authority

Position held

We would like to compete in the following region:

NORTH BARNESLEY MIDLANDS (BIRMINGHAM) SOUTH (ENFIELD)

LONDON (ENFIELD)

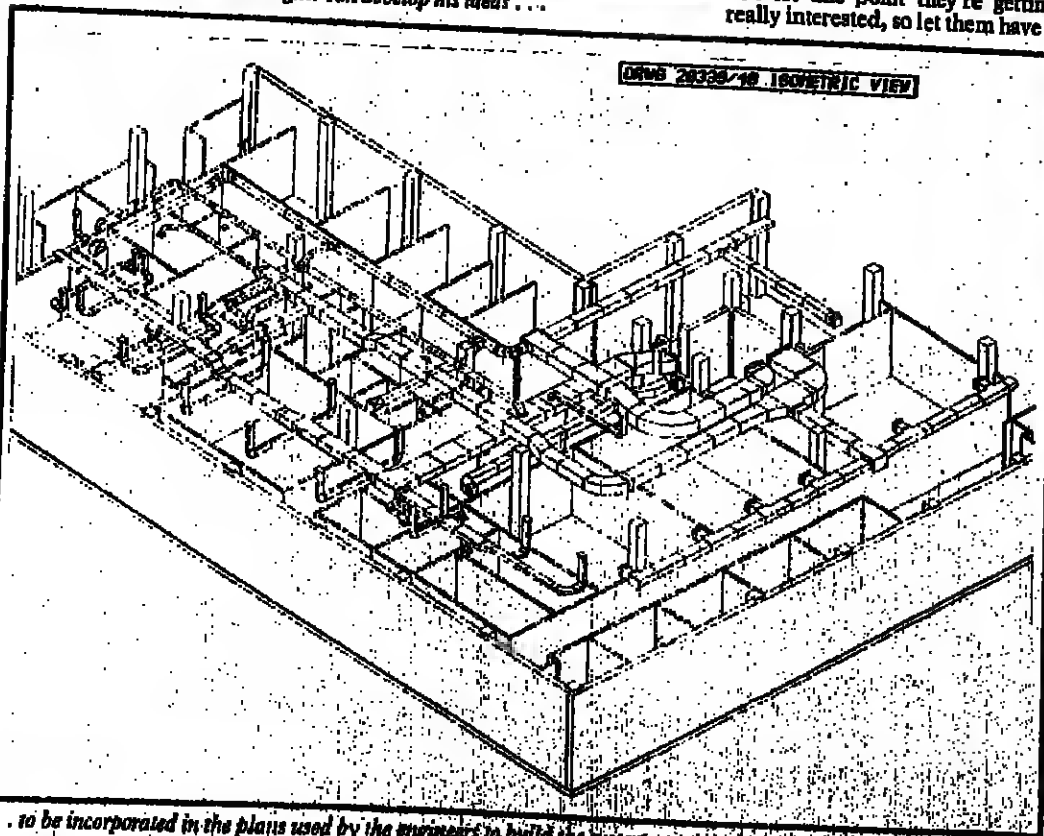
please circle appropriate region

Enclosed is £..... to cover the entry fees for the team(s). Cheques should be made payable to Computastars Ltd.

In all matters relating to the rules or conditions of entry, the decision of the organisers is final.

Please send entry form and fees to Computastars, 117b High Street, Croydon CR0 1QG. Telephone 01-688 6690

Using a CAD terminal the designer can develop his ideas . . .



... to be incorporated in the plans used by the engineers to build the system



resulting in a final product which indicates requirements exactly

Your guide to exhibitors at CAD North			
Company	Stand number	Data Type Terminals	Pragm
Alper Systems	131	Department of Industry	202
Ambitron	107	Radon Computational	120
Apollo Computers	406	EM&D	434
Applied Research of Cambridge	437	Engineering Computer Systems	546
Benson Electronics	410	Ferranti Ceteq	254
Bitterworth Scientific	100	Gerber Systems	237
CAD/CAM International	551	Graphic Information Systems	457
CAD Centre	121	Harper & Tunstall	447
Calcomp	544	ICL	524
Cambridge Interactive Systems	123	Imilac International	111
Cas Con	133	Intergraph	483
CEGB	210	ITT	414
Competa	147	McAuto	418
Control Data	407	Micro Aided Engineering	124
Coupling House Computers	418	Nicolson Lancastair	141
Deja General	418	Norrie Hill	225
			Where

Automated design speeds the development of diesel engines

Boris Sedacca reports on the use of CAD at Perkins Engines where workstations have replaced drawing boards to speed the design process

DIESEL engine technology is advancing rapidly, mainly in the areas of combustion and alternative fuels such as alcohol and coal-derived synthetic fuels.

Diesel engine manufacturers need to speed their design process to compete in order to respond swiftly to market demands. Many have come to recognise computer-aided design as a valuable and almost indispensable tool for this.

Perkins Engines, one of the world's leading manufacturers of diesel engines, is one such manufacturer. The company is a subsidiary of Massey Ferguson. It runs two IBM mainframes for its routine commercial applications - a 3033 and a 370/168 - to which about 400 terminals are linked. There is also an online link into Massey Ferguson's worldwide commercial network.

The company makes more than half a million engines every year in

factories in 19 countries. About 200,000 of those engines are built at the Perkins plant at Eastfield in Peterborough, which the company claims makes it the largest diesel engine manufacturing facility in the world.

The Perkins computer-aided design system is based on a dual-processor Computervision installation comprising two CGP 100 processors to which 11 workstations are linked.

A workstation, in Perkins terminology, is regarded as a replacement for the draughtsman's drawing board, and consists of a large graphics tablet and digitiser. A menu on the tablet allows the draughtsman to choose functions as required but a normal keyboard is used for entering numeric data. Two pen plotters and two electrostatic plotters are used for logging sessions and for working hard copies.

The use of CAD at Perkins allows design engineers to examine engine inlet port shapes and profiles, as well as combustion chamber configurations - that is, their volumes and shapes. The number of disciplines are closely related and designers who are fully conversant with three-dimensional capabilities are expected to work with aerodynamicists and combustion engineers who will probably be using other mainframe-based technical computing programs. Designers can make compo-

ponents rotate on the screen to show engine views from various angles. Alterations to an engine part which have been made on one view of the drawing will be reflected in all other views and on all drawings of that part held in the system.

The system also performs typical CAD functions such as changing the scale of a drawing, "zooming in" for detail work or "pulling back" to give a more general view. Text and figures can be easily added or deleted as required.

CAD NORTH

The time taken to perform routine draughting operations is drastically reduced when compared against conventional manual methods, along with the time taken to perform other routine drawing tasks such as dimensioning, producing detailed drawings from general assembly drawings, and so on.

"We were originally looking for faster production of assembly drawings," says John Brentnall, CAD supervisor at Perkins Engines. "Drawings are also used as sales aids. We expect to benefit from faster design changes. Our aim is also to make drawing much more widely available to other terminal users on the IBM mainframe by linking it to the Computervision system."

Where we expect the main benefit is in the faster production of drawings, for example, by storing regularly used components so that they can be inserted quickly

Sales, training, marketing and other sections of the company can be given ready access to up-to-the-minute drawings to provide illustrations for brochures, training aids, catalogues, and so on.

This facility to distribute drawings, some of which may contain sensitive design information which could be vital to the company's competition, may create security problems. But according to Frank Reader, computing manager at Perkins, mainframe users who want access to drawings from their terminals are subjected to sufficient security measures provided through IMS, IBM's database management software.

"Primary work, such as engine testing, is first carried out on various minicomputers from which data is later extracted for updating mainframe files," Reader explains. "These minis are localised, typically containing non-sensitive short term data. Otherwise there is a lot of security built in to IMS, and anyway, only 12 out of the 400 terminals hooked up to our mainframe have this CAD facility at the moment."

Perkins is a centralised, single site company. Nine CAD workstations are located in the engineering area, while the other two are in the manufacturing area, where the actual production of the engines takes place, for tasks such as jig and tool design. The best Computervision machine is located together with the IBM mainframes in the management systems area, halfway between engineering and manufacturing.

This, according to Brentnall, provides the advantage of 24-hour operation. The other Computervision processor acts as a satellite to the host within the engineering

area, linked to it by means of Computervision's Graphics Network Architecture (GNA).

Within the engineering division which is responsible for the design and development of new engines CAD equipment is used for a range of design tasks. The Perkins Q14 range of engines which is to come on to the market in the mid-1980s, was the company's first major engine project developed with the use of CAD.

The Q14 engine family will embrace three, four, five and six cylinder units, the design of which encompasses the latest in diesel engine technology. It will have significantly better fuel consumption than current engines, low noise output and will have less pollution omitted from the exhaust

"Essentially, we try to automate mundane design tasks. For example, simple components are drawn automatically by entering their dimensions in the form of alphanumeric data," says Brentnall. "Where we expect the main benefit is in the faster production of drawings, for example, by storing regularly used components so that they can be inserted quickly."

"We have been Computervision customers for five years now. We have also used other manufacturers like IBM for more generalised graphics for applications such as presentation of management information and of technical results, for example. We will eventually migrate the two systems to allow users on the CAD system to move over to the mainframe for most complicated calculations."

The use of CAD also promotes standardisation by allowing a designer to select, for example, a threaded fastener by calling up a list of standard Perkins fasteners. The list defines not only the materials and dimensions of parts currently in use, but also the number used annually, the engine types on which they are used (taking into account whether these engines are at the beginning or end of their lifecycles), and the unit cost.

The designer can thus select the part which fits the technical specification most economically. "Looking further ahead, we have plans to move into computer-aided engineering. By using the design capabilities of CAD, we will be looking at those aspects of engine design related to combustion."

"We also want to provide the ability to run technical computing

Turn to page 19



An assembly line for four cylinder engines of the Peterborough plant.

PREVIEW OF CAD NORTH

CAD promotes standardisation

From page 18

programs through CAD terminals to link their results with a graphics capability, specially in field of finite element mesh generation and finite element analysis," he adds.

There are 30,000 live drawings held on file at Perkins. One of the benefits of CAD is that modifications to existing drawings can be carried out quickly and new drawings produced quickly on a Versatec electrostatic plotter. Pen plotters are also used for outline drawings or combustion chamber profiles.

Manufacturing sections will be able to use computer-generated graphics as direct input to computer-controlled machine tools. The production of numerical control (NC) tapes will allow Perkins to gradually move to a total computer-aided engineering environment, using three-dimensional CAD work for machining port shapes and combustion chambers, and integrating this with work on finite element calculations.

The use of CAD also allows Perkins to undertake profitably smaller projects because turnaround time on drawings is speeded up. The system was planned from the outset to integrate with other computer functions. Problems created by the scale of the operation at Perkins are increased by the large number of different engine specifications, each of which is tailored to match customer requirements.

This leads to complications in assembly, component supply, and so on. The Perkins system helps to keep product costs down by increasing efficiency and keeping down stock levels. The company's approach has been to integrate systems as closely as possible to allow all divisions to access data stored on the system.

The use of ASPRO ensures that all areas of the company are working from the same manufacturing plan

The system provides assistance to the sales and manufacturing operation in addition to activities such as financial control and engineering. Perkins calls this ASPRO, for Assembly Program. Its function is to maintain an accurate, precise definition of future production in the form of a "build program".

This in turn provides the data for other systems such as material purchase scheduling, component scheduling, factory capacity planning, sub-assembly production and material picking from stores. The build program is constantly updated by a sales processing system.

The use of ASPRO ensures that all areas of the company are working from the same manufacturing plan and that factory loads and capacities are matched more closely.

On the materials supply side, the system automatically generates a set of proposals showing when suppliers should be instructed to make deliveries. The effect on materials stock levels can then be calculated and amendments made before printing delivery schedules to be sent to suppliers.

Perkins is currently extending the system for checking stores on the shopfloor and the amount of work-in-progress by installing a barcode scanner which will read computer-printed labels on the bins in which components are transported around the factory.

Engine tracking facilities down the assembly line are provided by

means of an engine build card containing a magnetic strip which accompanies each engine.

After each major operation is completed, the card is fed through a reader which scans the magnetic strip to report to the system the location of the engine. Terminals located throughout the factory are used by production personnel to inform the system of any faults found in an engine so that it can keep track of that engine's whereabouts.

The system also records information from the engine test cells where every engine is put through its paces before it leaves the factory. The behaviour of the engine under varying conditions of load and speed is recorded for later recall for things like quality analysis down to component level. All reports from warranty action, service engineers, fleet monitoring etc, are entered into the computer and added to the information stored during the engine's passage through the factory. Reports are then analysed and reliability data related to particular components or to particular assembly areas.

The system also helps customers' and distributors' service personnel who can obtain the engine's full history from the system. Storing component and product data on the computer also assists manufacturing areas in deciding how to assemble engines. For each engine specification, the computer records the full parts list and the route the engine must take through the factory in order for all components to be assembled in a logical sequence.

Changes in engine designs and specifications are "expedited" to show production departments the significance of alterations, component by component. The computer then helps to calculate the correct assembly route for the new specification. Changes also affect the purchasing departments which are automatically alerted to alterations.

Perkins sales subsidiaries throughout the world are linked to the Perkins mainframe system at Peterborough. These companies enter customer orders into terminals, specifying the engines to be delivered and the week in which delivery is required up to 12 months away. The system checks orders received against factory pre-defined constraints established by the company's production control departments.

For example, the computer checks to see whether the number of orders received for a given week is within the production capacity of the factory and whether the materials needed to complete the order are in stock or can be ordered and delivered on time.

Provided that the order does not exceed any of these constraints, the sales company is instantly informed that the order is accepted and the system automatically updates the database to take account of the new order, altering the forecast materials and components requirements so that the necessary action can be taken by the purchasing department and those sections of the factory concerned with producing engine components.

If however the new order does exceed the constraints laid down in the system's program, then it is referred to the production control department for a decision. If the order can be accommodated by, for example, rearranging the planned engine building programme, the sales company is informed and the system updates the database accordingly.

The system allows online interrogation from any terminal so that all departments concerned can keep track of the situation, to establish the current state of the order book for a particular customer, the planned production of a particular engine type, total planned production for a given period, and so on.



Part of the newly installed cylinder block machining line at Perkins Engines.

Buying to Sell?

An important conference for companies buying products to sell on to the user



The Computer Trade Conference is a vital opportunity to learn how to buy in systems, software and peripherals and sell them profitably to your market. The editorial resources of Computer Weekly, Systems International and Practical Computing have combined to stage a two day conference covering the sales of medium and small systems and products to both professional and home computer user. Ranging from mass storage to software, and from IBM to the best vertical market, the conference will run alongside the first Computer Trade Show at the International Wembley Conference Centre and be held on April 26 and 27, 1983. Make a date to share the experience of suppliers and vendors alike.

- PROGRAMME TUESDAY, APRIL 26**
- 09.30 Registration and Coffee.
 - 10.00 What hardware should you sell? - the amount of technology on the market is bewildering. What products and types of devices are here to stay, and more importantly, which can make money for you?
 - 10.30 What software should you sell? - it is tempting to go for the established products such as CP/M, Wordstar and Visicalc. But is this the best route to success?
 - 11.00 Who should you sell to? - are vertical markets the way forward, or is a more general approach to marketing called for?
 - 11.30 Coffee.
 - 11.45 Support - how much should you give? - are cut prices and a cash and carry attitude preferable to comprehensive user support, or is there room for both methods?
 - 12.15 What a software house looks for in a dealer? - a leading software house explains its selection criteria for the organisations which will be its interface with the consumer.
 - 12.45 Lunch.
 - 14.00 Selling and licensing through large manufacturers - you may have a product needed by a major computer company. How should you go about convincing them?
 - 14.30 Dealing with the majors 1 - ICL and the Tradepoint scheme.
 - 15.00 Dealing with the majors 2 - IBM and its attitude to third party vendors. A rare chance to get behind the facade of this enigmatic giant.
 - 15.30 Dealing with the majors 3 - DEC and its authorised dealer scheme. The world leader in minicomputers talks about selling for them.
 - 16.00 Close.

- WEDNESDAY, APRIL 27**
- 09.30 Registration and Coffee.
 - 10.00 What's new? - hardware developments - an overview of the current state of the art. Everything you ever wanted to know about micro floppies, low cost printers, Winchester and local area networks.
 - 10.30 What's new? - software developments - database management, operating systems, and the latest trends in applications software are discussed.
 - 11.00 Putting it together - the problems of plug incompatibility - what fits with what, and what won't. A look at putting together turnkey packages.
 - 11.30 Coffee.
 - 11.45 Marketing your own product - a software house case study. A behind the scenes look at how to do it right the first time.
 - 12.15 Selling yourself - how to get your name known by the right type of customer. The power of advertising should be working for you.
 - 12.45 Lunch.
 - 14.00 Don't ignore the man in the street: a case study - home computer users are becoming more sophisticated. High volume, low cost products may be right for you.
 - 14.30 Selling into business: a case study - higher unit costs appear attractive, but is the commercial user a tougher nut to crack than the home user?
 - 15.00 Selling a US product in the UK - there's a vast pool of packages across the water. How, and why, you should sell them to the British consumer.
 - 15.30 A future look - where will you be in a year's time.
 - 16.00 Close.

REGISTRATION FORM Please complete in block capitals and send to Conference Administrator, Room 1313, Surrey House, Thornhill Way, Sutton, Surrey SM1 4QQ. Tel 01-643 8040. Ext. 4840 and 1692.

Please indicate which sessions you will be attending:
 April 26 _____ April 27 _____
 VAT for two days or £90 plus £13.50
 VAT for one day covers attendance, coffee, lunch and conference documentation (tax invoice will be sent).

Please reserve places for the Computer Trade Conference, visiting the Computer Trade Show (if applicable, where appropriate).

Name _____
 Position _____
 Company _____
 Address _____
 Telephone _____

Authorised Signatory _____

COMPEC SCOTLAND '83

The leading Scottish computer show

Sponsored by Computer Weekly
 May 17-19, 1983. Kelvin Hall, Glasgow.

Success breeds success!
 Scotland's showcase for the computer industry now bigger than ever!

Following a highly successful debut in Scotland this year, we are giving COMPEC SCOTLAND '83 a new venue with far more selling space. Even at this early date, over 50% of stands available have been sold.

Make their business your business.
 The growth of Scottish computer use - and its diversification - will be reflected not only in attendance, but equally important, in the range and importance of COMPEC SCOTLAND '83 visitors. Experience has shown you can expect to meet a very high percentage of senior purchase-decision makers as well as many other computer specifiers, users and professionals.

We introduce Software Village
 COMPEC SCOTLAND's Software Village is a special area set aside within the show, devoted entirely to software and software services.

Get the full story.
 Simply fill in the coupon below and we will send you full details of COMPEC SCOTLAND '83. It's Scotland's own show for computers, systems, peripherals and software.

To: The Advertisement Manager, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 6AS.

I am interested in exhibiting at Compec Scotland '83. Please contact me.

Name _____

Position _____

Company _____

Address _____

Telephone _____

COMPEC SCOTLAND '83

April 1983

MARKETPLACE

CONTACT XENIA WHITE—FOR ADVERTISING RATES TELEPHONE: 01-661 8671

Computer Peripherals for DEC Computers!

LINE PRINTERS
Data Products - B300 & i/ £4,200 - LP11-AA Equiv.
Data Products - B600 & i/ £5,250 - LP11-EA Equiv.
DISKS - SKRM02 - 67MB Disk + Control for PDP11 £8,420
67MB Add-on Disk £4,750, 134MB Winchester (2xRM02) £4,950
SKRM06 - 13+65MB Disk + Conl. for PDP11 & LSI11 £8,420

MAGTAPES
SKTU16 - Magtape and Controller 600/1600 45 ips £5,200
60" Cabinet for above £850

PRINTERS - LA120-DA £1,850, OUME 9-45 £1,450
VDU's - VT100-AB £1,175

SK Computer Systems Limited
Lutud
St. Michaels House
Norton Way South
Leitchworth
Herts SG6 1PB
Tel: (04626) 79331
Tlx: 825647

(All prices include installation, exclude VAT.)
DEC, PDP, LSI and VT are trademarks of Digital Equipment Co. Limited.

CIT 101™ The VDU for DEC users.



- Standard Features**
- VT100™ Compatible I.A.V.O.
 - Printer Port, Independent Bidirectional EIA or 20Ma LPT 1 15ft Cable
 - Green or Grey Screen
 - Options
 - Tektronix 4010™ Compatible
 - Slave 160cps Printer

Perfectly matched to your needs
SYSTEMS ARCHITECTS

DATA GENERAL

We will buy, sell, install and maintain DG equipment throughout mainland UK.
Available immediately USED

6053 VDU's £900
Nova 3 CPU's £2000
20 MB Disc Sub-System £5900
ULM5's £1100

Eclipse and Nova Memory
Contact: Julia Ames 01-633 9577

Cable & Wireless UK Services Ltd.
83 Blackfriars Road, London SE1 8HA

ATTENTION

Do you have any new, redundant or second-hand computer equipment, computer-related supplies, services or property that you would like to sell?

Then phone me, Xenia White on 01-661 8671 for details and rates of advertising in the Marketplace section of Computer Weekly.

Osborne

Special Offer to Clear Stocks of Equipment Used on Short Term Project (Maximum Usage 3 Months)

OSBORNE 1
Single density
NEW. SPECIAL OFFER
Qty 1-10: £1250
Qty 11-20: £1200
Qty 21-50: £1150
Qty 51-100: £1100
Qty 101-200: £1050
Qty 201-500: £1000
Qty 501-1000: £950
Qty 1001-2000: £900
Qty 2001-5000: £850
Qty 5001-10000: £800
Qty 10001-20000: £750
Qty 20001-50000: £700
Qty 50001-100000: £650
Qty 100001-200000: £600
Qty 200001-500000: £550
Qty 500001-1000000: £500
Qty 1000001-2000000: £450
Qty 2000001-5000000: £400
Qty 5000001-10000000: £350
Qty 10000001-20000000: £300
Qty 20000001-50000000: £250
Qty 50000001-100000000: £200
Qty 100000001-200000000: £150
Qty 200000001-500000000: £100
Qty 500000001-1000000000: £50
Qty 1000000001-2000000000: £0

* WARRANTY - Full Parts and Labour (Minimum 6 months)
* SOFTWARE - CP/M Operating System C BASIC M BASIC Super Calo Wordstar (etc)
* MANUAL - Full Hardware and Software Operating Instructions.

RING TRICIA CARROLL 0278 76455/76480

Delham International Limited
Princes House, High Street
Bogshot, Surrey GU15 2AF

PLAIN COMPUTER LISTING PAPER

Tenders are invited for supply and delivery of Plain Computer Listing Paper.
Approximate quantity 762,000 sheets.
Forms of Tender obtainable from:
Borough Secretary
London Borough of Lewisham
Town Hall
Catford SE8 4RU
Closing date 14/3/83
Contract will commence 21/3/83

HANOVER FAIR 1983

Why pay over £200 per seat with the Airline, when you can charter one of our executive aircraft.
Consider the following advantages:
• Arrival and departure times to suit YOU not the airline
• Free beer
• Price for an 8 seat aircraft from Gatwick would be £1,200
• Departures from other airports can easily be arranged
Call now for bookings or other charter enquiries on 0203-770881 (ask for Paul) Interflight (Air Charters).

HIGH SPEED HIGH QUALITY HIGH SECURITY PRINTING

OF UNIQUE DOCUMENTS, LABELS, LETTERS AND BAR-CODES FROM ANY INPUT SOURCE.
Complete pre-print, over print and finishing for their really prestigious job.
EYE TECH SECURITY PRINT LTD.
Tel. 0842-760306. Telex 556217
A subsidiary of Norton & Wright Group PLC

ALTOS 8000-12 MTU

4 user, 20Mb Winchester, tape cartridge back-up. Ex-demonstration unit. Normal retail price over £10,000. Best offer over £5,000 secured.
Tel. Edward Leatham
Liverpool Computer Centre
051-236 2900

AGENTS REQUIRED

To sell popular computer books, software and magazines to micro-users, bookshops and newsagents, including "RAM" and other new magazines from U.S.A.
Generous commission levels
ELKAN ELECTRONICS
11 Bury Road, Farnsworth
Manchester M20 2LZ
Tel: 061-796 7812 (24 hours)

IBM FOR SALE

3410/3, 3411/3 dual density, S38 attach. Available immediately.
Tel: 01-893 0285

WORKING ICL 2904 MODEL 50 CONFIGURATION

Comprising: 192K Memory, 8 EDS 80 Disc Drive, 2 FDS, 2 Line Printers, model 2411 and 2423, 2 Magnetic Tape Units models 2510/11.
ICL maintained, available March for commissioning or spare.
Offer to be received by 31st March
Contact: Mr D. Armstrong on 021-844 6141

DEC LSI MODULES

SPECIAL PURCHASE!

DLV 11-J 4 serial line units	£280
MSV 11-DG 32KB MOS memory	£150
MSU 11-DD 64 KB MOS memory	£175
LSI 11/2 KD11-HA Processor with KEV11 extended arithmetic chip	£310
BA11-MB 3 1/2 in. box with power supply	£365
H9270 4 x 4 backplane	£75

Prices exclusive of V.A.T. and Delivery
• DEC and LSI designations are trade-marks of Digital Equipment Co. Ltd.

MCS
Management Control Systems
26 Barlow Moor Road, Chorlton-cum-Hardy, Manchester M21 2BJ
061-861 0757

MARKET PLACE

DATA COMMUNICATIONS EQUIPMENT FOR SALE

* 8 and 16 Channel Statistical Multiplexers
* 4800 and 9600 Baud Modems
* Complete systems available at almost half manufacturer's recommended price.
Tel: Carol Gibba 0284-69921

DATA GENERAL
NEW USED, BUY, SELL, TRADE, REPAIR
* GIG. TAPE DRIVES * PRINTERS, DASHES
* MEMORY BOARDS * COMMUNICATIONS
* CONSULTANCY - HARDWARE, SOFTWARE
* DEPT OR ON-SITE MAINTENANCE FACILITIES
Please call STEPHEN DAVIS or NICK SCARR
Modular Business Computers Ltd.
10a Gunpowder Square, Watford, Herts. WD2 2EA
Telephone: WATFORD 00161
Telex: 823074 MDC

PRODUCT UPDATE

GET MORE PAY LESS
TRY THE ALTERNATIVE

Now VAS can offer you The Alternative Head featuring 3300 high reliability slider technology. The "Head of the Future" is designed to be electrically and mechanically compatible for C.B.C. drives. Since its introduction over 30,000 have been sold. So try The Alternative Head. You'll get more and pay less.
VAS long ago established itself as the foremost independent supplier of Magnetic Heads. All Filters and Magneto Media. You can now obtain our very quick delivery 80mb and 300mb Storage Media Drives, 32, 64 and 80mb Cartridge Module Drive and the C.B.C. 8334 Matrix Printer.

For price and quick delivery phone:
VAS
VAS Computer Parts & Accessories Limited
44 Manston Hill, Bromley, Kent
01-464 7227 Telex: 896559

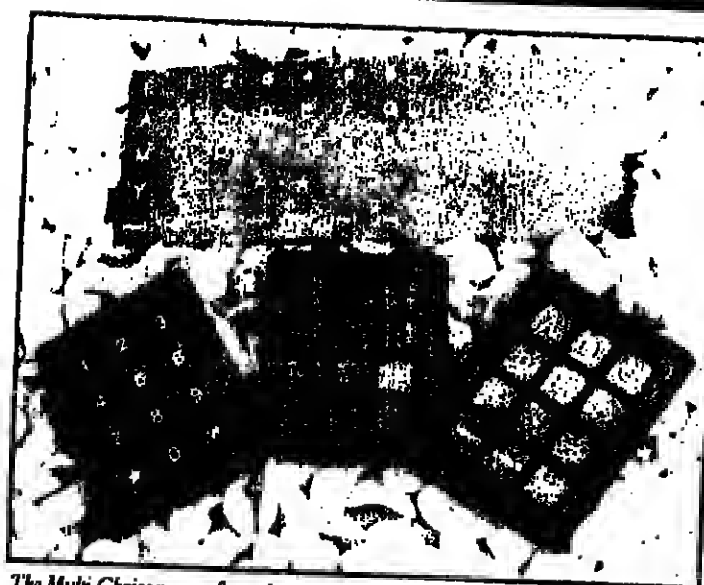
S.O.S Stop Operators Suffering

The temperature's rising and soon the heat from your computer will make it unbearably hot and stuffy in a confined computer room. Both the staff and their work will suffer. We are specialists in installing 'Myco Pacific' air conditioning units into small computer rooms anywhere in London and the South East. We're fast, we're clean and we're inexpensive! Ring us NOW for a free survey and quotation or complete the coupon for further details.

Prices exclusive of V.A.T. and Delivery
• DEC and LSI designations are trade-marks of Digital Equipment Co. Ltd.

Tai Servicecool Ltd.
Tanton House, Napier Road, Gillingham, Kent
Telephone: 0634 53346
Please send me further details of Myco Pacific Air Conditioning Systems for small computer rooms.
Name _____
Company _____
Address _____
Postcode _____
Telephone _____
Fax _____

NEW USED COMPUTER EQUIPMENT
BUY OR SELL THROUGHOUT THE UK
SAMPLE UNITS AVAILABLE FOR SALE
* IBM 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3163, 3164, 3165, 31



The Multi-Choice range of membrane switch panels.

Switch to 57 varieties

NEW FROM Flexible Switch Technology is the Multi-Choice range of membrane switch panels, offering instant delivery on a customer-selected range of legends from up to 57 different characters on 3x4, 4x4 and 5x4 switch arrays. The switch panels, which have the advantages of being fully sealed and low profile, incorporate reverse-printed graphics for durability and performance. Blue, white or red are offered as standard background colours, and the

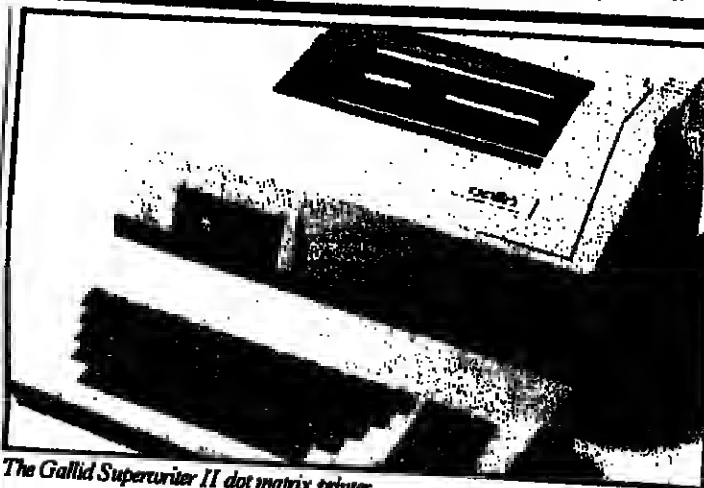
panels are available with either flexible backing or printed-circuit mounting. PST makes no charge for tooling on custom-designed panels, and the company is aiming to despatch all deliveries within 24 hours. Unit costs for small quantities are typically £4.50 per panel. Flexible Switch Technology (CW), Unit 3, Middlefield Industrial Estate, Sunderland Road, Sandy, Beds SG19 1RB. Tel: (0767) 80332.

Fast access data storage from Encotel

HIGH capacity rapid access storage in a complete workstation is available in the form of the hard disc BMC 1800 system from Encotel, the Croydon-based microcomputer distributor. Encotel's new version of the BMC 1800 with built-in printer and full colour high resolution graphics, costs about £3,600. Made by Oki, it is fitted with a 10 Mbyte Mitsubishi Winchester disc drive and Oki's own controller.

Encotel expects the new model to appeal to anyone wanting rapid access storage, particularly scientific and technical users. The BMC 1800 can be operated with a powerful range of software packages.

Encotel Systems (CW), 7 Imperial Way, Croydon Airport Industrial Estate, Croydon, Surrey. Tel: 01-886 9687.



The Gallid Superwriter II dot matrix printer.

Gallid matrix printer

A DOT matrix printer called the Superwriter II has been introduced by Gallid. It is an 80/132 column microprocessor-controlled device suitable for almost every type of computer installation, says Gallid. It can also be used as an

interactive second printer for any time-sharing system. The Superwriter II prints at 128 characters per second. Gallid (CW), 1 Bliton Road, Rugby, Warwickshire CV22 7AA. Tel: (0788) 744423.

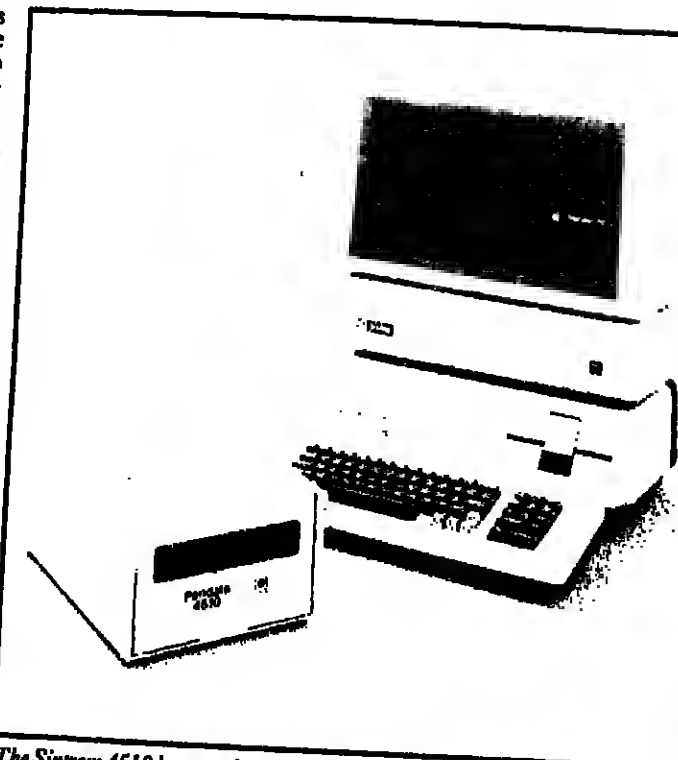
Low cost back-up for Apple III users

SINTRON Electronics has launched a low cost back-up device for Apple III users. The Sintrom 4510 has been developed specifically for the Apple III Profile Winchester disc and is claimed to offer back-up at 25% less cost than any other device on the market.

Most users of Winchester disc microcomputer systems need back-up to maintain safe archive management procedures. The Apple III user previously could transfer the five Mbytes of data to floppy discs, a lengthy and troublesome process, or could buy a very expensive streaming device.

The Sintrom 4510, which was developed by Sintrom's sister company Perex, copies data for archiving purposes from any size of file to the highly reliable 3M tape cartridge. The 3M cartridge was chosen because of its wide industry acceptance as a stable and reliable medium for back-up.

The Sintrom 4510 costs £1,358 and is available direct from Sintrom in Reading or from Apple III dealers. Sintrom Electronics (CW), 14 Arkwright Road, Reading, Berks RG2 6LS. Tel: (0734) 975464.



The Sintrom 4510 low cost back-up for Apple III Winchester disc users.

Data recorder unit is fully portable

MICRODATA has introduced a fully portable data recorder unit, designed primarily for collection and non-volatile storage of data from solid-state memories in data loggers and similar systems. Called the Microdata model M1683, the new unit employs a standard 1/4-inch magnetic-tape data cartridge as the storage medium; and it records in computer-compatible Asci/Ecms serial format. It interfaces directly with the recently announced Microdata Solog all-solid-state portable data logging system.

Powered by internal rechargeable batteries, the M1683 is believed to be the only recorder of its kind to feature its degree of self-contained portability. When fully charged its batteries have sufficient capacity for the recording or play back of a complete data cartridge. The equipment can also operate in a float-charge mode, from any standard AC mains supply or from an external low-voltage AC or DC source.

It is supplied with either an RS232C or IEEE-488 input/output interface as selected by the customer, and it can operate under interactive computer control if desired. It is also equipped with a separate eight-bit parallel bi-directional interface, which is CMOS/TTL compatible, for connection to a microprocessor. This input/output port is employed when the recorder is used in conjunction with the Microdata Solog data logger.

The M1683 recorder is capable of storing up to 2.8 Mbytes. Microdata (CW), Monitor House, Station Road, Radlett, Herts. Tel: (09276) 3141.

Jasmin puts colour into character generation

JASMIN Electronics has launched a TV-based information display system utilising a unique in-colour character generator which the company claims to be the most versatile on the market.

Information systems incorporating the new character generator are easy to use and display any information - from share prices to train times to sale offers - in the most suitable size and with a wide range of colours, says Jasmin.

A black and white version of the new character generator has already been successfully installed as part of Jasmin's information system at British Rail's Preston and Pancras stations.

One basic system can contain up to seven different formats and the same information can be presented in different formats without needing to be generated once.

Almost any format, from 11 characters on four lines to 80 characters on 25 lines can be generated.

The full range of colours can be combined in an almost unlimited variety of different lettering, backgrounds, borders, boxes, underlining and flashing characters. The system can be controlled manually by a computer and can also be combined with public broadcast teletext and Prestel pages.

Jasmin Electronics (CW), 5 Matthews Way, Leicester LE1 2AA. Tel: (0533) 58128.

Barcode readers

RENTAL Research has launched a range of barcode readers that will attach to all IBM systems. The readers consist of a light pen, a slot reader, and decoder unit that attaches between the keyboard and screen on an IBM workstation. Using a current loop, up to seven barcode readers may be attached to a single workstation without effect on the system configuration.

The coded information is then read on to the screen as if it were keyed data, a solution with the lowest software and hardware costs.

Rental Research (CW), 2 London Wall Buildings, London Wall, London EC2M 5PP. Tel: 01-628 0341.

APPOINTMENTS

Computer Weekly Classified Department
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS
Tel: Direct Client Sales
01-661 8080
Consultancy Sales
01-661 8787
Telex: Comweek 892084 Biepra G

Direct client sales
Tele-sales Manager
Shobhen Gajjar
Field Sales
Manager
Mike White
Consultancy Sales
Assistant Manager
Julie Hennaforde-McNelly

Regional Offices
Birmingham/Bristol
Vic Sheret
021-356 4838
Manchester/Glasgow
Owen Kelly
061-872 8861
Production
Steve Lever
01-661 3104

General copy deadline
3.30 pm Monday prior to
Thursday publication
Top Jobs deadline
4 p.m. Friday prior to
Thursday publication
Colour deadline
4 p.m. Friday prior to
Thursday publication

Rates
£31 per e.c.c.
Quarter page
Half page
Full page

(15cms x 3cols) £1400
(15cms x 7cols) £2320
(39cms x 3cols) £2210
(39cms x 4cols) £2700
(39cms x 7cols) £4350

Box nos. £5 extra. Address back to c/o Computer Weekly, Classified Dept., Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS

Ambitious Programmer

West of London

Our client is a group of companies operating across a very broad spectrum of industry. The Group presents a profitable and secure profile and one of the largest and most exciting areas of activity is in food distribution.

This division has a DEC PDP 11/70 under RSTS/E and the first major implementation is a Pricing System, the initial stages of which are currently in operation. Other major projects have already been identified, including a new Product Promotion system.

To keep pace with these new developments, the company requires an ambitious, young PROGRAMMER able to demonstrate the following skills and aptitudes:

- * A good knowledge of RSTS/E
- * At least 2 years experience of BASIC+/BASIC+2
- * The potential to rapidly move into Systems Analysis
- * Bright, reliable and able to form effective relationships with users

If you are looking for a challenge and an environment where you can make a real contribution, then our client can present the ideal opportunity.

The starting salary is up to £9,000 and additional benefits include 21 days Holiday, Subsidised Restaurant, good Pension Scheme and Discounts on Company Products. The UXBRIDGE location has ample car parking facilities and is close to all forms of Public Transport. We recommend you apply without delay quoting REF: DMJ/803.

Hardware Systems Engineer

To £16,000 (Hampshire Base)

A commitment to the highest standards of performance has made our client the largest and most consistently successful systems house in the UK.

The Engineering Services Area is a vital part of the operation and enjoys a substantial reputation based on experience and leading-edge expertise. Due to the increased demands on their services, the company now requires a HARDWARE SYSTEMS ENGINEER.

Your hardware background will include systems configuration, equipment selection, proposal preparation and pre/post sales support. You will almost certainly be working for a computer manufacturer in a Technical Support role with your most recent experience in the area of Data/Voice communications (the emphasis on data). A knowledge of local area networks including X25, HDLC;

SDL, SDLC would be highly desirable.

The company provides an outstanding environment for ambitious professionals who want to be associated with success and recognised for achievement and effort. The Head Office location is SURREY/HANTS borders and you should be prepared for some travel within the job. The starting salary reflects the importance of the position and additional benefits are those you would expect from an organisation of this stature, including ASSISTANCE WITH RELOCATION. Knight Recruitment highly recommends this vacancy and it is important you contact us without delay. For immediate appointments quote REF: DMJ/805.

VAX Systems Programmer

c£12,000 + benefits

Our client, Coca Cola Southern Bottlers, is one of the biggest manufacturers of soft drinks in the UK. The name Coca Cola is synonymous with success. Why not become part of this formula and join their newly created Technical Support team.

The company has made a significant investment in distributive systems with central processing facilities based on new DEC VAX hardware. The UXBRIDGE location has ample car parking facilities and is close to all forms of Public Transport. We recommend you apply without delay quoting REF: DMJ/804.

Providing technical support is a vital function and as such the organisation intend recruiting a talented and ambitious Systems Programmer able to demonstrate the following skills:

- * A minimum of 2 years VAX experience
- * Fully conversant with VMS and associated utilities
- * Able to perform a systems generation

* Experience of resource management (ie disc space allocation/user a/c's etc)

* A knowledge of telecommunications a distinct advantage

In addition you will be communicative and able to establish cooperative relationships with all levels of user. It is also anticipated that you will play an important role in the support of distributive systems. As we have mentioned, the company are building a new team and can therefore provide outstanding career prospects. The starting salary is highly competitive and the usual large company benefits, including Relocation Assistance and BUPA, will apply. To find out more about this exciting opportunity and to arrange immediate interview contact REF: DMJ/804 without delay.



Hardware Consultant

Southern Home Counties To £16,000

Our client, a leading UK Systems House with a highly impressive growth record, comprises a number of operating divisions.

We are currently recruiting for the Defence and Special Systems Division and to keep pace with the demands on their services, they wish to appoint an additional Hardware Consultant. This position is fundamental within the total project development cycle and only candidates with the presence and strength of character associated with a dedicated professional are required.

Within a project environment, you will be responsible for monitoring the hardware development process to indicate systems and hardware design and testing. Further, you will be expected to maintain sound relationships with senior customer management.

In addition to a degree or equivalent you will have a thorough background in digital hardware development, preferably with

some knowledge of equipment design in a military environment.

Salary and benefits are commensurate for this level of appointment within a company of this stature, and includes Assistance with Relocation.

This is an outstanding opportunity and we recommend you apply without delay quoting REF: DMJ/806.

reprints

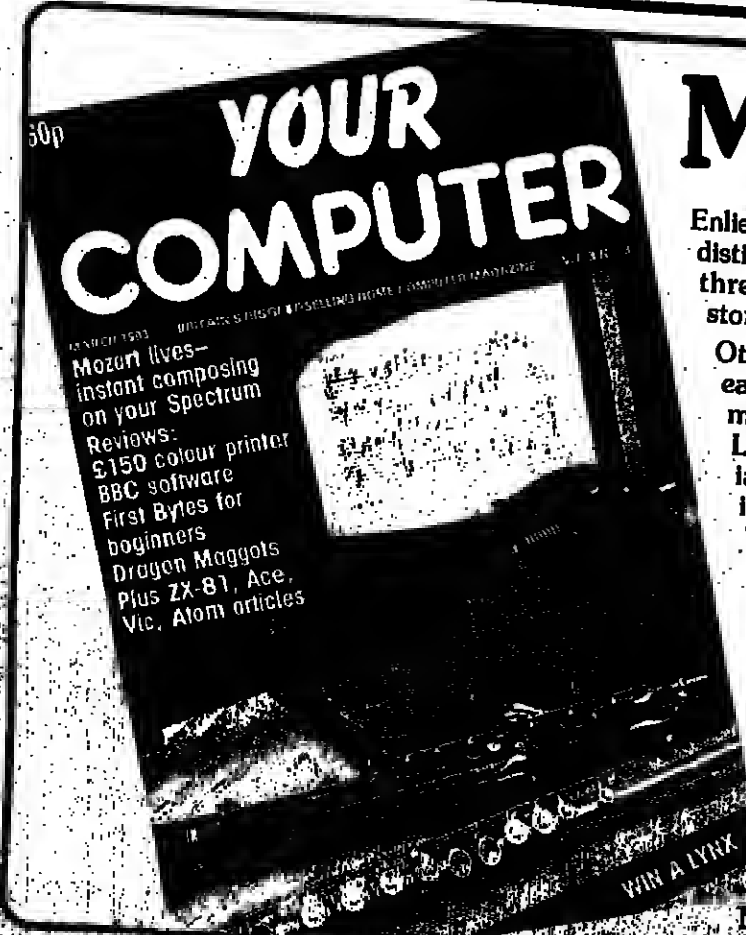
If you are interested in a particular article/special feature or advertisement in this journal
Have a good look at our Reprint Service!

We offer an excellent, reasonably priced service working to your own specifications to produce a valuable and prestigious addition to your own collection of material (minimum order 250 copies). Telephone Michael Rogers on 01-661 3036 or complete and return the form below.

To: Michael Rogers
Computer Weekly, Room 211A
Quadrant House, Sutton, Surrey SM2 5AS

I am interested in copies of article/advert, listed on pages featured in this journal. Please send me full details of your reprint service by return of post.

Name
Company
Address
Tel No.



Mozart lives!

Enlist the services of Amadeus to create music of distinction. We tell ZX Spectrum owners how to play three-part variations on a theme by Mozart - and store the composition for future play-back.

Other features in this issue include: First Bytes, each month covering a different aspect of Basic - most popular computer language - for beginners; Language Learning, how to learn a foreign language with a micro; Spectrum Word Processor, in which we take the hassle out of typing. Thousands of home computer owners are finding that computers can be fun with the aid of Your Computer. Order a regular copy and find out for yourself.

YOUR COMPUTER

March Issue From your newsagent 60p

COMCAP

LONDON · ZÜRICH · COPENHAGEN · OSLO

- 1 YEAR RENEWABLE CONTRACT
- FREE ACCOMMODATION IN COMFORTABLE VILLAS fully equipped - TV, Showers, air conditioning, etc.
- MAJOR TAX CONCESSIONS
- FREE AIR FARES
- FREE TRANSPORTATION & MEDICAL COVER
- GENEROUS PAID HOLIDAYS
- RECREATION FACILITIES Swimming Pool, Squash, Tennis etc.
- PAID OVERTIME

Working in Saudi Arabia can be a very good life if you work with the right company. A company which appreciates the very best talent from the UK and will reward successful applicants with the highest salaries and benefits; the best living conditions and the opportunity to work on the most sophisticated DP equipment. The experience you gain will keep you ahead and your talents will always be needed - wherever you work. COMCAP in conjunction with their Saudi Agents are highly experienced in the business of recruiting high level computer people and appreciate the advantages and disadvantages of working in Saudi Arabia. "Lawrence of Arabia" didn't need Comcap Resources but he would have benefitted immensely from our experience and the benefits we offer. Speak to PETER MADAMS to find out why.

**HE DIDN'T
NEED US,
BUT YOU
WILL!**

STOCKHOLM · MILAN · FRANKFURT · ROME

ANALYSTS AND PROGRAMMERS - PLI or MARK IV
SALARY TO £26K
Required Skills: At least 3 years experience PLI IMS DB/DC - ADF desirable, or Mark IV TSO/SPF or SAS. Experience of Commercial Systems particularly Financial or Payroll will be useful.

MVS SYSTEMS PROGRAMMERS
SALARY TO £33K
A minimum of 2 years pure Software Systems experience in one of the following areas:
DATA COMMUNICATIONS (NCP, VTAM, MSNF)
GENERAL PURPOSE SOFTWARE (PLI, FORTRAN, MARK IV)
OPERATING SYSTEMS (MVS, JES 2/3, VM 370)

ANALYSTS AND PROGRAMMERS - COBOL
SALARY TO £26K
Required Skills: At least 3 years Commercial Cobol experience in one or more of the following areas:
a) MVS JCL TSO/SPF
b) 4300 DOS CICS
c) Financial or Payroll experience.

SOFTWARE DESIGNERS
SALARY TO £28K
Required Skills: At least 4 years experience developing Software for Mini or Micro based systems, especially PDP's and Hewlett Packard, ideally in a Process Control environment.

TECHNICAL PROGRAMMERS - FORTRAN
SALARY TO £28K
Required Skills: MVS JCL TSO/SPF VSAM. Knowledge of Minicomputers and experience in Engineering, Graphics or Operations Research.

STOP PRESS If your interest is in short term contract work, in Saudi Arabia or The Netherlands, we now have a number of requirements for skilled personnel in the following areas.

SAUDI ARABIA - PROGRAMMERS, ANALYSTS & TRAINERS
PL/I (+TSO/SPF JCL, UTILITIES, Debugging, COBOL, FORTRAN, IMS, CLISTS and PSL/PSA)

THE NETHERLANDS - SYSTEMS PROGRAMMERS
PL/I, ASSEMBLER, IMS, CMS ± macro's SMP4, MVS VM OS/VS1

NO STAMP NEEDED

POST YOUR ENVELOPE TO:
COMCAP RESOURCES
FREEPOST LONDON W2 6BR

**com
cap**

COMCAP
RESOURCES LTD
26 Chilworth Street
London W2 6DT
01-723 4053

License No 88792

COMCAP

COMPUTER WEEKLY February 24 1983 25

LONDON · ZÜRICH · COPENHAGEN · OSLO

Comcap Resources are now well into our second year and it looks like being just as successful as the previous twelve months, when we became the main supplier of top quality computer staff to the Middle East. This successful growth was carried over into the UK market, and our current requirements are constantly expanding.

So just as success breeds success, it must make sense to talk with the UK's most rapidly growing professional recruitment agency, to see what we can offer you!

Call Caroline Tee now, or should this be inconvenient, fill out one of the "cut-out coupons" below (the other one is for a friend) and post it to us, FREEPOST as soon as possible!

PERMANENT

We have many requirements, covering a whole range of skills to give you varied market coverage. We list brief details below and will be pleased to supply further information on request:

SYSTEMS PROGRAMMER c. £13,500
DOS/VSE CICS essential. Excellent benefits. Ref: P165

PROGRAMMER LONDON to £12,000
IBM 4300 DOS/VSE CICS COBOL. Various real-time on-line Financial applications. Ref: P166

ANALYST/PROGRAMMER HAMPSHIRE c. £9,500
HL64/DPS4 GCOS skills required. Good prospects, would suit programmer capable of moving into Systems Analysis. Ref: P177

SOFTWARE ENGINEERS BEDS/BUCKS c. £9,500
Graduates with 2 yrs Real-time software and Assembler experience on minis or micros please telephone for full job spec. Ref: P179

PROGRAMMER SURREY to £9,000
SYSTEMS ANALYST SURREY c. £12,000
ICL 2955, DME3, GII, COBOL ± MAIS New Real-time and batch applications. Flex hours. Excellent benefits. Ref: P181

ANALYST/PROGRAMMERS MIDDLESEX to £12,000
IBM 4341, MVS PL/I ± CICS VTAM TSO/SPF IDMS. Various administrative and financial applications. Ref: P183

STOCKHOLM · MILAN · FRANKFURT · ROME

DATABASE ANALYST NW LONDON £14,000
IBM MVS IDMS. Major organisation. Ref: P182

TECHNICAL CONSULTANT SUSSEX + UK TRAVEL Salary Neg.
COPICS CICS DL/I. Req. Definition, syst. design/maintenance, project management and user education +++ Small professional Co. Ref: P185

PAYROLL ANALYST to £13,500 + Car
UNIPAY ± IBM Utilities. Ref: P186

PROGRAMMER Salary Neg.
1 Year min. CICS/DL/I ± RAMIS exp. Various commercial applications. Ref: P187

ANALYST c. £12,000
Technical background including CICS design and VSAM. Accounts receivable system. Ref: P188

BUSINESS ANALYST BERKSHIRE Salary Neg.
Strong accounts background. To work on large invoicing system. Good benefits. Ref: P189

FINANCIAL ANALYST HOME COUNTIES c. £13,000
MSA/MMS/RTZ To advise users and tailor packages to local requirements. Some travel involved. Ref: P190

ANALYSTS BERKSHIRE Salary Neg. + benefits
Market analysis forecasting and statistical support exp. req. Ref: P191

CONTRACT

Our current requirements are constantly being up-dated, these are the most urgent!

SYSTEMS PROGRAMMER MIDDLESEX
4341 MVS JES2 ASSEMBLER. Ref: 0078

SOFTWARE ENGINEERS BEDFORDSHIRE
Micro oriented software development using PL/M86 and Assembler. Ref: 0077

SYSTEMS PROGRAMMER SURREY
IBM VM/CMS ASSEMBLER ± OS/VS1 MVS JCL TSO/SPF COBOL. Ref: 0071

ANALYST/PROGRAMMER LONDON
EXTTEL/EXSHARE DOS/VSE COBOL. Ref: 0069

NO STAMP NEEDED

POST YOUR ENVELOPE TO:
COMCAP RESOURCES
FREEPOST LONDON W2 6BR

**com
cap**

COMCAP
RESOURCES LTD
26 Chilworth Street
London W2 6DT
01-723 4053

License No 88792

An outstanding career opportunity in computer operations

Computer Operations Manager

Location: Central London
Salary: Circa £15,000 p.a. plus benefits which could include company car for an exceptional applicant

Our client is a very successful British company. Their use of computing has grown dramatically over the past two to three years, and they now wish to appoint a Computer Operations Manager to play an important role in this continuing development. The range of equipment used is considerable. It includes Prime and ICL hardware and a considerable number of micros and word processing equipment.

Our client is looking for someone who has a strong technical background in the operations sense. Ideally a knowledge of CAD would be an asset, but this is not essential. More important is the ability to match the growing expectations of existing company management. Creativity and innovation will need to be part of daily life, and the ability to assist user management properly in the development of the systems from the operational point of view is paramount.

However, controlling the installation, which is totally interactive, on a day-to-day basis is certainly not the total job. Forward planning in terms of new hardware, the ability to cope with the development of new operational systems and the

control of people in a growing computer installation form an important part of the total responsibility necessary to make a success of this position.

Before you apply consider the following points:

Have you worked in a senior position in an interactive installation? If the answer is no then on this occasion you are not the right candidate.

Do you have experience of controlling staff and dealing with users over a period of at least five years, and would you be able to prove this at an interview?

Have you experience of predicting future hardware demands in line with your understanding of computer user requirements?

Have you worked in a position where the only person to fall back on is yourself?

Are you in the age range of 28 to 35, ambitious, keen to get ahead in a rapidly developing computer environment?

If the answer is yes to these questions then we would like to hear from you. Please send your curriculum vitae to JVG Recruitment Ltd.

RECRUITMENT LTD.

Sturry House, Brimley Road, Camberley, Surrey, England.
Tel: Camberley (0276) 29213. (24-hour answering service). Telex: 858386.
A Member of Search Partners International
UK • AUSTRALIA • NEW ZEALAND

JOHN GOLDSMITH

Sales Director Designate

Microcomputers

Original Computer Applications

Package in excess
of £25,000 per annum
+ Quality Car

Midlands/Home Counties

Our Client, part of a profitable public group of Companies, operates at the forefront of modern microprocessor and micro electronic technology. They have invested substantially in the development of a REMARKABLE product which since its launch has achieved considerable success, and generated significant orders within major accounts in the public, defence and private sectors.

Continued growth and success has created this key appointment of Sales Manager (Director designate) to control the Company's sales activities and supervise distributors and agents.

Responsibilities will include managing, motivating and training the sales team as well as spearheading the sales effort in major accounts. Working closely with the Managing Director you will be involved in developing the marketing policies of the Company.

You will probably be aged between 28 and 40 and have a successful track record within the computer industry which should include practical experience of microcomputer applications and inter computer communications. You will need to have a creative approach to selling and a problem solving mentality, combined with a determination to achieve business objectives.

The successful applicant will enjoy a salary of circa £15,000 per annum, plus a 2 Litre Company Car and other benefits. The incentive scheme in operation will take your earnings in excess of £25,000 per annum and an early promotion to the Board is envisaged for the successful candidate.

For further information contact DAVID WADE on 021-236 3781 (24 hour answering service) or on 0785 660051 (Evenings and Weekends).

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH
James House, 40 Broomfield
London W1M 5HS
01-236 3781

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street
Birmingham B3 3TV
01-236 3781

NORTH
International House, 84 Deansgate
Manchester M3 2ER
061-236 3781

BELOW
Avenue Louise 327
B-1050 Brussels
020 322 840 7181/771

HOLLAND
Willemspleinweg 82
1071 XA, Amsterdam
020 3126 7598/7

DEFENCE

at Scicon

Defence has a continuing requirement for higher performance weapons, a requirement that keeps defence procurement agencies to the fore in developing and applying new technology. The technical excellence and flexibility of Scicon's approach has gained them a reputation second to none for sophisticated yet cost effective solutions to defence sector problems.

Career opportunities are excellent, leading to consultancy and project management, with emphasis put on training. We would like to hear from you if you identify with any of the following positions:

BUSINESS DEVELOPMENT MANAGER

£15,000-£17,000 + car

You will need to have about 10 years experience for this demanding role, of which the last 3-4 years should have been in a "command, control and communications" environment. You must have a combination of technical excellence, management ability and the right interpersonal skills for handling clients at a senior level.

SENIOR DESIGN CONSULTANTS

£12,500-£15,000
You will have about 6-8 years experience, with a track record for the design of real-time command, control and communications systems, and a real-time programming background in ADA, CORAL or MASCOT.

CORAL or MASCOT ANALYST/PROGRAMMERS

£8,000-£11,000

Real-time micro experience in a command and control environment is required. Experience with INTEL, VAX or GEC 4000 hardware is an advantage.

SIMULATION AND MODELLING ANALYST/PROGRAMMERS

£8,000-£11,000

The ability to carry out innovative studies in a small team is required. It is likely you'll have a good degree in a numerate discipline, scientific programming experience (FORTRAN, PASCAL) and considerable career potential.

DEFENCE INFORMATION SYSTEMS CONSULTANTS AND ANALYST/ PROGRAMMERS

£8,000-£13,000

You should have experience in the design and implementation of materials handling, stock control, and other defence logistics systems based upon DEC PDP and VAX equipment using a variety of packages with FORTRAN and COBOL.

For further information on any of these positions, please contact MARK IRENS quoting reference CW 0302.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.

TELEPHONE: 01-353 7141 (24HOURS)

Hutton

SPECIALIST RECRUITMENT CONSULTANTS

ACCOUNT MANAGEMENT OR NEW BUSINESS DEVELOPMENT

£24,000 GUARANTEED & CAR

STATE OF THE ART 16/32 BIT MINIS IS DISTRIBUTED OR STAND-ALONE ENVIRONMENTS WITHIN PUBLIC SECTOR, MAJOR ACCOUNTS OR NEW BUSINESS TERRITORIES.

MASSIVE EXPANSION GIVES RISE TO VACANCIES IN LONDON, SUSSEX, HERTFORDSHIRE, EAST ANGLIA, BIRMINGHAM, BRISTOL, MANCHESTER, SOUTH YORKSHIRE AND SCOTLAND.

With an expansion programme of this magnitude, one would be hard pressed to find a more exciting and potentially rewarding opportunity in the U.K.'s computer industry.

Superb hardware and operating systems, together with the "credibility" of an established and successful name are important to any sales situation. Add to this sophisticated marketing and an excellent range of packaged and bespoke applications software and one has all the ingredients of highly successful selling - all we need is your expertise!

Broadly, our Clients need people with at least five years' successful selling in any of the areas outlined above. Experience of the larger minis or mainframes is preferred, but above all, candidates should have a "systems solutions" approach to selling.

Please telephone BOB BOWER - Advising Director quoting reference CW 2402

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

SYSTEMS ENGINEERS

**IBM, BATCH, ON-LINE, DATABASE
MAIDENHEAD, BERKSHIRE
£10,000-£15,000 + CAR**

MSA (Management Science America) Ltd., the world's leading supplier of packaged application software, seeks Systems Engineers to provide full technical support to customers and application consultants.

We are looking for Data Processing professionals with experience in any of the following: BAL and/or COBOL, CICS, VSAM, IMS DB/DC, and technical problem solving in DOS/VSE, OS or MVS environments.

This is an opportunity to build on your expertise in the above areas and gain experience of the very latest trends in IBM technology.

Mainframe/Micro link and exploitation of IBM's new SXX operating system rate highly on MSA's priority list for technological advancement during 1983.

You will receive constant training to keep you abreast of current technological developments and will benefit from the variety involved, both of work content and IBM systems. Opportunities exist for short trips to the U.S.A. and Europe.

Fringe benefits are excellent and include a quality car, annual bonus, BUPA and good pension scheme.

For further information, please contact MARK IRENS quoting reference DL2401.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

Computer Peripherals Distributor Manager W. Europe

**Quota Package
C. £22K + Car + BUPA**

Cipher Data Products are the world's largest manufacturer of low cost tape drives and are leading innovators in streaming technology. Our continuing high growth rate dictates further expansion.

We need an ambitious manager to develop additional distribution channels in Western Europe for a range of new products about to be launched.

The person we want will probably be aged between 25 and 35 and have a sales background in microcomputers and/or micro related peripherals such as floppy disk. Self-motivation, the ability to negotiate at all levels and the confidence to work remotely from head office, are all essential qualities for this job.

The position is based at our European HQ at Camberley, Surrey UK, reporting to the Managing Director.

If you believe you have the qualities we need, send C.V. to M. A. Brown, Managing Director at:

Cipher
4, Cowley Place, Surrey Avenue, Camberley, Surrey,
GU15 3DX, England.

Information Processing Manager (Banking)

**Nairobi, Kenya Two-year contract
Home leave after one year**

Reporting to senior Management, the successful candidate will be responsible for all aspects of information processing and computing.

The post calls for an experienced professional with outstanding qualifications in information processing; banking experience is essential. The computer equipment includes an IBM 4381 and an IBM 29 together with service the requirements of some 50 branches employing 2,600 people.

Strong personal qualities will include initiative, management skills and capability to identify and train a possible successor within a limited time frame. Preferred age is 30-45, single or married status. Salary will be negotiable within the range of £35,000-£50,000 per year; a car will be provided, together with accommodation and other fringe benefits.

Please apply in writing, quoting experience and full personal history, to: Box No. 1248, Computer Weekly, Room 209, Quadrant House, The Quadrant, Sutton, Surrey.

All replies will be treated with strict confidence.

BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 6AS

HOWARD

European Opportunities

Belgium £25-29K

VAX, PL/I Programmers
minimum 4 years experience
VAX, PL/I Programmers
relational data base experience
VAX, PL/I Software Designers
relational data base experience

Please contact in the first instance, Sally Lawrence on 01-553 8992 (office hours) or on 01-553 8917 between 5-6pm.

Luxembourg £20K

ICL 2900 COBOL/VME-B Programmers
PL/I (French competence)
ICL 2900 FORTRAN Programmers
PL/I/ALGOL (TSO advantageous)

Howard Organisation International Limited, Russell House, 240 High Street, London, Middlesex E14 7HS

Senior Sales Executives

Banking Systems

Bahrain Based £30,000+ (tax free)

ARBAT

Bahrain is a stable and progressive State with - for the greater part of the year - a pleasant maritime climate. Social conditions are excellent and free from irksome restrictions. A major Gulf trading centre, it has a growing range of industries, the foremost of these being banking and finance.

ARBAT "The Banking Systems People" offer a complete range of banking and telecommunications computing capabilities based on the latest Digital Equipment Corporation (DEC) technology and are recognised as being the world leader in their field.

For these two key appointments good banking experience is essential. In addition, you should either be able to prove a successful track record in sales of minor systems (hardware and/or software) to banks or have a background in the operational or marketing functions of banking itself, with a good understanding of computers.

The terms and conditions of employment are excellent, providing the best aspects of a top level sales appointment and expatriate status (married or single), enabling you to enjoy a very high standard of living and the opportunity for substantial accumulation of capital.

In addition to a basic salary (tax free) of c. £18,000, you will be provided with housing, utilities, a car, medical facilities and full cover, four weeks' holiday and other return air ticket home per annum.

To apply please write to M. J. R. Chapman, quoting reference 6232.

**Lloyd Chapman
Associates**

125 New Bond Street, London W1Y 0HR 01-499 7761

Logitix

Logitix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Defence Systems Software

Netherlands : Pkg to £18K

The Defence Group of a multi-national corporation urgently requires a number of Senior Programmers/Team Leaders, to join both the Application and Systems Team currently employed at its Development Department. Experience should have been gained in a real-time environment over a period of 7-10 years. Specific application areas of interest are likely to include use of Command and Control, Process Control, Data Communications or Weapons

Guidance Systems. At the Systems level, suitable applicants should be fluent in RT1/2, Pascal or Coral 66 and, preferably, have participated in the development of at least one compiler. Additional knowledge of ADA and exposure to a MASCOT environment will attract a salary premium. All positions are on a permanent basis and full relocation expenses will be met by our clients. Ref: LWA

VAX/FORTRAN Programmers

Inner/Greater London : Salaries to £11K

An International Systems Company specialising in the development and marketing of communications software is seeking additional Programmers and Designers for its London Headquarters. Candidates aged 22-27 years should hold a numerate degree and have a minimum of two months FORTRAN programming experience preferably gained in a PDP-11 or VAX

environment. Application areas of interest include Office Automation, Viewdata and Pencil. Data Communications and Distributed Processing. Since these positions entail a high degree of client liaison, you should possess excellent personal communication skills and be prepared to travel both nationally and internationally. Ref: LWB

Software Development

Cambridge : Salaries to £12.5K

The Cambridge based Research and Development facility of a rapidly expanding Micro Systems Supplier is currently seeking additional Programmers and Communications Design Engineers. Applicants for the positions of Programmer should have a first or second class honours degree in a numerate subject and at least eighteen months subsequent experience in a micro based software development environment.

Fluency in a high-level block structured language is essential but applicants who can also offer experience in compiler writing/development will be of particular interest. For the positions of Communications Design Engineers you should offer an in-depth knowledge of Local Area Networks and applicants who are acquainted with the Cambridge Ring Design philosophy will attract a salary premium. Ref: LWC

'C' and Pascal Programmers

Central London : Salaries to £10K

One of the U.K.'s leading suppliers of micro-hardware and communications oriented software is currently seeking a number of 'C' and PASCAL Programmers to assist in the development of both applications and systems software. All respondents should hold a first or second class honours degree in Computer Science, Electronics or Mathematics. Those who have completed a sandwich course and can offer

a minimum of six months' programming experience with a commercial organisation are encouraged to apply. Ideally, you should have current programming experience in 'C' or PASCAL under UNIX, CP-M or MP-M on any leading 16- or 32-bit processor. Of additional interest are those who have some knowledge of communications protocol techniques - X25 and COB. Ref: LWD

Video Games Software

London & Home Counties : Salaries to £9K

Programmers who have developed Systems Software on any of the leading Personal Computers are urgently required by a number of our clients. Language skills should include BASIC and Assembly with fluency in Pascal or 'C' being a very useful supplement. Specific responsibilities will include not only the development of new games

software but also evaluating programs, sent in on a speculative basis by outside contractors, for any software huge and commercial viability. These positions are most likely to appeal to recent graduates with a lively interest in the Home Computing market. Ref: LWE

Comms Consultants

Inner London : Salary to £18K

A London based Systems House and Consultant is seeking several Data Communications and Network Consultants. Generally, all candidates should be educated to at least A-Sc standard and have subsequent relevant work experience amounting to at least five years. Of particular interest will be those who have an in-depth knowledge of communications protocol techniques - X25, SDLC/HDLCL. Since these

positions will entail a high degree of customer contact of director and senior management levels, good personal presentation skills are invaluable. You will be called upon to provide a total consultancy service from the strategic study through to written recommendations, on-site implementation and customer acceptance. Ref: LWF

Compiler Development

London & Home Counties : Salaries to £14K

A major Systems and Software House has recently embarked on a large new project requiring the expertise of a number of Compiler Development Specialists. Suitable candidates will have participated in the development of either a Pascal or Ada compiler preferably for 16-bit micros. Familiarity with all phases of compiler

development is strongly desirable with particular emphasis placed on Code Generation and optimisation. Whilst specific responsibilities will vary, depending on the ability and experience offered, all successful candidates will be involved from initial proposal stages through to the creation of a fully self-supporting compiler. Ref: LWG

Operational Analysts

London : Salary to £13.5K

A number of Operational Analysts are required by this London based Consultancy. Academically, you should hold at least a first or second class B.Sc. Degree in Mathematics, Physics or Statistics. An M.Sc. or Ph.D. in Operational Research is a distinct advantage and will certainly reflect on the salary offered. Past work experience should include one or more of the following

areas: war gaming and scenario studies, mathematical programming and analytical modelling, navigation systems assessments, reliability studies and data reduction. An important feature of these positions is the ability to communicate software and O.R. techniques in non-technically minded persons. There will also be a degree of travel to clients sites. Ref: LWH

TO
ADVERTISE
IN JOB SPOT
PHONE
JAMES
ATTWELL
01-567 5501

Armstrong

**SYSTEMS ANALYSTS
Attractive package**

Armstrong World Industries is an international manufacturing organisation with a computer centre supporting a network of locations throughout the UK. In response to future needs, the company is planning a major systems development programme utilising the latest information systems technology. This will involve substantial redevelopment of all systems and to meet this challenge the company requires experienced Systems Analysts to assume a leading role. Hardware is based on an IBM 4381 running under DOS/VSE utilising CICS and candidates should have on-line development experience (preferably CICS and/or Mantia) and ideally, a working knowledge of Cobol. An understanding of business practices and procedures, good communication skills and the ability to lead a project from feasibility to implementation are essential requirements. In return Armstrong offer highly competitive salaries, a comprehensive benefits package and an opportunity to develop your career in a stimulating environment.

LOCATION: WEST MIDDLESEX

JAS16/1

**KCB
MICROS LIMITED**

**SALES
EXECUTIVES
from £15,000 + CAR**

Since the company's formation in 1980, KGB Micros Limited have seen a dramatic growth in their sales of microcomputers and associated software and peripherals. An increasing demand exists for the company's products and to meet this, KGB wish to recruit creative and adaptable Sales Executives. Applications are invited from self motivated sales professionals with a proven track record of selling technical products into a highly competitive commercial environment. Experience will ideally have been gained in word-processing, bureau or mini-computer sales. The successful candidates will be required to promote the company and its product range at all levels which will include identifying and gaining new business, selling to the existing customer base and attending conferences, exhibitions and seminars. KGB will offer the successful candidates an attractive package which will include a high basic salary, company car and realistic targets which will produce a first year income of not less than £15,000.

JAS16/2

dp

Confidential Reply

**SOFTWARE ENGINEERS
SOFTWARE
PROGRAMMERS
to £8,500**

Our client has a world wide reputation for designing, building and installing integrated software and engineering systems. They provide a total solution, which means high technology software installed complete and fully supported. Opportunities have arisen for Software Engineers and Software Programmers to work on display and data handling systems for advanced technical applications. Software Engineers should have about four years' experience which will include programming, systems design and implementation trained in a senior role in a multi-micro environment. Experience of real time applications would be preferable. Software Programmers should have about two years' experience including Assembly or similar, program specification and design in a multi-micro environment. Systems appreciation would be an advantage.

The company is based within easy reach of London. Housing is available at reasonable prices and benefits include flexible working hours, relocation, five weeks holiday and outstanding sports and social facilities.

LOCATION: ESSEX

JAS16/3

TR

**PROGRAMMER
£68,000**

Trebor Limited are a household name in the manufacture and wholesale of confectionery and related products. Recent expansion has created a vacancy in the head office based computer services department. The company wish to recruit a Programmer with at least two years' experience gained in a commercial environment, preferably IBM, using Cobol. The hardware is based on an IBM 4341 running under DOS/VSE and VME utilising CICS and DL/I. In addition the company supports Burroughs B800s at their head office and UK network of distribution depots. Although not essential, preference will be given to those candidates who have gained their experience on IBM 4380 series mainframes with a knowledge of CICS and DL/I.

As part of a successful organisation the department offers excellent opportunities for career progression, competitive salary and attractive conditions with a benefits package which includes a pension scheme, subsidised restaurant and annual profit shares.

LOCATION: ESSEX

JAS16/4

Action..

cut or send the coupon to
D.P. Recruitment Ltd
Freeport, London W5 2ST
01 567 5501
01 567 5501

Name

Address

Home tel. Work tel.

I am interested in Ref.

PERSONAL COMPUTING

c. £10,000 negotiable according to experience

Office Automation Specialist

- Ground floor opportunity
- Equipment sizing, selection, evaluation etc.
- Challenging and enterprising environment

You will have had at least five years in a systems development role and seen projects through from inception to successful working order. Your experience range must include several of the following areas:

micro computing, office automation techniques (such as word processing and electronic mail), viewdata, timesharing and telephone/data communication networks.

COMPUTER CENTRE

c. £8,500 + shift premium

Shift Leader

- Staff supervision
- Control three Data General computers (MV8000, M600, Nova)
- Help run a diverse range of "on-line" systems

You will already have at least four years' operations experience including staff supervision and some exposure to programming. Knowledge of Data General hardware and systems is essential.

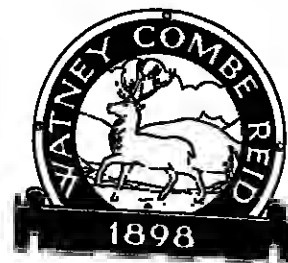
NETWORK SUPPORT

c. £10,000

Technical Operations Analyst

- Manage and develop a network
- Multi-machine environment
- System design
- 60 + Distributed Terminals

You will have had the necessary experience to ensure that the computer centre is able to provide the required level of service to many users throughout our offices and depots. You should have worked with Data General computers in a large "on-line" environment and have a solid operations background. Two years' programming experience is required. The job also involves working with the Systems Team in sizing and design of new applications.



Watney Combe Reid & Co. Limited,
Mortlake, London SW14.

We are the largest regional company within Watney Mann and Truman Brewers Ltd., which itself forms a major part of Grand Metropolitan Plc. We provide this benefits you would expect from a large company both in remuneration and in career development opportunities.

Phone Hilary Bishop on 01-876 3434, ext. 330,
for more details and an application form.

Young IBM Programmers

Career Opportunities In

Management Consultancy

to £13,000

London Based.
European Travel.

One of the World's top management consultancies seeks Junior Consultants to join high-powered project teams working on assignments throughout the Government, Industrial, Commercial and Financial Sectors.

You will be involved in:

- ★ The design, development and implementation of complex systems;
- ★ Computer policy planning, equipment selection and installation;
- ★ Feasibility studies and computer efficiency reviews;
- ★ DP organization studies and procedures development.

Ideally you will possess a sound academic background (preferably degree level) and will have gained 2-4 years' experience of Commercial Programming. Strength of personality and communicative ability will be important factors.

Training the first order - In addition to the Company's own in-depth training in Business and Management methods, considerable use is made of external courses in advanced computer techniques.

Prospects are excellent - successful candidates will be expected to progress rapidly into senior DP consultancy positions, with opportunities to diversify into other fields of business.

OTHER BENEFITS include frequent salary reviews on merit, generous travel and accommodation expenses, subsidised BUPA.

If you are seeking a career path that could take you right to the top, please telephone or write quoting Ref CW 2998.

Lloyd Chapman Associates

125, New Bond Street, London W1Y 0HR. 01-489 7761

Software Engineering

Somerset up to £14k

Plessey Marine Research Unit at Templecombe in Somerset is at the centre of advanced sonar technology and is looking for high calibre, degree-qualified people - preferably in electronics or computer science - to share in the technical leadership of its teams engaged in the rapidly expanding field of Marine Electronic Systems.

The projects are in distributed processing, specialised hardware control, micro-processor aided displays, and signal processing. Opportunities exist for all levels of experience and aptitude.

Systems Analysts able to lay down the framework of a multi-processor design from customer requirements, and to communicate and control these designs during implementation.

Software Systems Designers able to develop the detailed software design concepts and lead technically a team of implementation programmers.

Programmers wishing to develop their existing programming abilities and level of design responsibility.

Software is developed using a Host-Target approach. The host computers are DEC PDP11 and VAX machines, supporting INTEL 8086 and T1 9800 microprocessors. Languages used are CORAL 86, PASCAL, and ASSEMBLER, which are normally used in conjunction with a highly developed MASCOT design and implementation methodology.

Salaries will be in a range up to £14k. Big company benefits include help with relocation to our attractive part of the West Country, within easy reach of the South Coast and enjoying the advantages of reasonably priced housing in surrounding country towns and villages.

Please ring Peter Whitfield, Technical Resourcing Manager on Templecombe (0963) 70551 for an application form, or send a full cv to him at Plessey Marine Research Unit, Wilkinstroop House, Templecombe, Somerset BA6 0DH. Please quote reference TEM/238.

PLESSEY
electronic systems

(12028)

Opportunities in the Systems Development Group for

PROGRAMMERS

Central London up to £9,450

We need experienced staff with a minimum of two years' COBOL experience to work in an IBM environment on a wide range of development projects.

We are developing computer-based systems covering the whole sphere of London Transport's activities, ranging from the day-to-day operation and maintenance of buses and trains to the various support functions which are essential in providing an extensive transport service.

This requires an expanding range of modern computers, which currently includes IBM 3033, 3031AP and 4341 operating under MVS, an extensive and growing communications network based on IBM's SNA and distributed processing using IBM 8100 DPPX machines.

There are opportunities to work on extensive real-time and on-line systems, involving distributed processing and database development. These are interesting, challenging jobs with excellent promotion prospects, and among our fringe benefits we offer FREE TRAVEL on all London Transport services and generous travel concessions on British Rail for you and your family.

If you have at least two years' COBOL experience and are working knowledge of at least one of the following:

- IBM OS/VS1 or MVS
 - CICS and/or DL/I
 - Jackson Structured Programming (any environment)
 - IBM 8100 DPPX systems
- then please send FULL career details, in confidence, including length of experience with particular machines/software and current salary to Audrey White, Central Personnel, 56 Broadway, London SW1H 0BD or if you prefer, phone for an application form on 01-227 3853.

LONDON TRANSPORT

Applications, quoting ref. CDV 600 should arrive not later than Monday 14th March as we intend to hold interviews by 28th March 1983.

(12029)

WANG

Wang Laboratories (Irl.) b.v., is the European headquarters for the manufacture of Wang products. Our rapid growth has resulted in the need to expand our Limerick based manufacturing and distribution facility to 320,000 sq. ft. over the coming two years.

We are extensively utilising our advanced data processing, word processing and office automation systems... while Wang's communications network, using our electronic mail system, has been developed for use internally as well as to Wang offices in Europe and the U.S.

To complement our M.I.S. team in implementing and integrating systems into an advanced resource sharing network, we are currently seeking the following key personnel:-

COMPUTER SYSTEMS/OPERATIONS MANAGER

Reporting directly to our M.I.S. Manager, the brief for this challenging position will be to manage efficiently the entire computer operations area... with staff responsibility for operations analysts and operators. This is to ensure that service to user departments is maintained at a very high level.

Candidates will be professionally qualified in an M.I.S. related discipline and will possess the direct systems and programming experience necessary to operate in a commercial on-line environment.

The successful applicant will also demonstrate initiative and ability in introducing the latest hardware and operating systems and in implementing networking and operations/applications programming.

When applying, please quote Ref: OM/CSL.

SYSTEMS ANALYSTS

As active members of our M.I.S. team, the primary responsibilities of these positions will include designing and implementing integrated systems... together with assisting users to obtain maximum return from our comprehensive range of applications.

Candidates with substantial experience in commercial on-line systems will have a good background in systems analysis and/or extensive technical expertise.

Excellent communications skills together with the initiative and ability to apply the latest technology in a business orientated environment will also be pre-requisites.

It is expected that candidates who will be professionally qualified in a related discipline, will have a proven record in at least one major project.

The areas of application for successful candidates will include manufacturing, materials M.R.P., engineering, telecommunications, networking, quality control, finance, personnel, order processing and office automation.

When applying, please quote Ref: SA/I.

For both positions, Income Package and conditions of employment - which will include full relocation expenses where applicable - will be very attractive and calculated to interest only high calibre applicants.

If you meet our requirements in terms of experience, qualifications and potential and you wish to contribute positively to one of the world's more progressive companies, please write, giving full career details and quoting relevant reference to:

Richard Kennedy,
Recruitment Manager,
WANG LABORATORIES IRELAND b.v.
Castletroy, Limerick.

All applications will be treated in confidence.

Making your world more productive.

(12030)

ROBERT GORDON'S INSTITUTE OF TECHNOLOGY, ABERDEEN

School of Mathematics
COMPUTER STUDIES

SENIOR LECTURERS (two posts), to develop CNA degree course in Computer Studies/Computer Science with experience in supervision of a systems design and implementation project and/or extensive academic/practical experience in topics relating to software engineering, real time and expert systems. Developments envisaged will follow a strong technological bias with particular emphasis on practical aspects.

Good Honours degree in Computer Science/Computer Studies or allied discipline, or considerable industrial experience required.

Salary range: £11,700-£14,748 per annum.

LECTURER to teach programming, use of software packages and microcomputer systems to a wide range of courses. Interest in operating systems and/or graphics encouraged.

Good Honours degree in Computer Studies/Computer Science required.

Salary range: £7,956-£12,581 per annum.

Assistance with removal expenses.

Details from Secretary: Robert Gordon's Institute of Technology, Schoolhill, Aberdeen AB9 1FH. (0224 633611).

(12040)



CITY OF NORWICH

NORWICH INFORMATION TECHNOLOGY CENTRE

MANAGER

A 30-place Centre to give training and work experience in micro electronics and information technology to young people, and to be a focal point in the local community for support and development of new enterprises, is being set up by Norwich Information Technology Centre Limited supported by the Department of Industry and the Manpower Services Commission.

We are looking for an enthusiastic Manager with a relevant technical background, and a strong commitment to the needs of young people. The Manager will be required to set up and run the Centre and to take the lead in developing its role as a focus for the redevelopment of micro-technology in the Norwich area. The Centre will have a further five full-time staff.

An initial contract of three years is envisaged with a salary in the region of: £12,000 to £14,000.

Further details and an application form are available from the Director of Administration, The City Council of Norwich, City Hall, Norwich NR2 1NE. (Please ask for Mr C. S. Brown. Tel. 22225 Ext. 685.)

Applications are welcomed regardless of marital status, sex, race or disability where this will not prevent the applicant from fulfilling the duties of the post. Closing date 10th March 1983.

(12041)

Software Specialists

Cambridge or Sheffield

GST is a professional systems company with offices in the Cambridge area — a new office is planned in Sheffield in April this year. The Company is structured into Software Services, Hardware Distribution and R & D and has specialised in systems software and the technical application of computers. Its reputation for quality has been gained by recruiting only the best technical staff and by its uncompromising internal quality assurance standards and methods.

With the 1983 planned expansion additional vacancies are immediately available. If your experience is not ideal for these specified vacancies there will be more openings later in the year, but we would welcome you registering your interest now.

Automation Systems Designer

£9,500 to £11,000 + car

A systems designer with at least six years' experience of the application of computer systems in manufacturing industries. Mini or micro based experience is essential but experience of DEC and RTL/2 would be an advantage. The successful applicant will be involved in the design and implementation of turnkey systems in a process and production control industry and in providing consultancy to our current client base.

Operating Systems Specialist

£10,000 to £12,000 + car

A highly competent systems specialist with at least six years' experience in the design and development of operating systems, executive or language systems primarily for mini or micro systems. Experience on Motorola 68000 or DEC equipment would be an advantage. The successful applicant will be involved in major software development projects in the role of systems designer or architect.

Technical Programmers

£7,000 to £9,000 + car

Self-motivated programmers are required to join teams working in CAD/CAM, real-time systems or microprocessor applications. A minimum of two years' experience is required, one of which should have been spent using FORTRAN, PASCAL or ASSEMBLER. Successful applicants will be involved in a wide variety of interesting and challenging projects eg: image analysis, 3D modelling, micro based instrumentation. These positions offer excellent prospects for advancement.

Analyst/Programmer COBOL

£7,000 to £9,000 + car

A programmer is urgently required to join a small project team working on a major distributed system using multiple linked micros. A minimum of two years' programming experience is essential including two years' COBOL, preferably CIS and experience of production control or related DP applications would be an advantage. The position offers an opportunity to gain experience in interactive multi-user systems based on local area networks.

Hardware Sales

£10,000 base + car + commission

With a proven track record in selling, preferably micro based systems for technical applications, your background should include technical expertise as you will be responsible for generating sales to selective clients. GST provide full back-up and support as well as a wide range of proven software packages and products. This position offers excellent promotion prospects for the successful candidate.

For further details please contact Jenny Dalrymple-Hay or Ian Murray West (day 8 a.m. to 10 p.m.) 01-493 2947 or weekends respectively Beaconsfield (04946) 4579, Milton Keynes (0908) 563415, quoting ref. 9956.

DALROTH & PARTNERS LTD., 4 HALF MOON STREET, LONDON W1

MIDDLE EAST

Small Ad — But big Tax Free Money for trained!

WP/MINI/MICRO SALESMEN

Multiple positions in an expanding Company. We are Overseas Computer recruitment specialists.

Send full C.V. or phone for details.

Ref. CW 101 — 3D

CAPP ASSOCIATES
01-686 9693

Capp House, 96d South End, Croydon CR9 3SD.
Telephone 01-686 9693.
Recruitment Consultants

BEDFORD COLLEGE OF FURTHER EDUCATION

APPLICATIONS PROGRAMMER FOR COMPUTER CENTRE

The person appointed should have previous experience in one or more high level languages, and will be responsible for the provision, development and maintenance of information on computer application packages.

Salary Scale AP4 £6,873 to £7,545 per annum.

Application forms and further particulars available from the Senior Administrative Officer, Bedford College of Higher Education, Gaultwell Street, Bedford. Tel. Bedford 48151 ext. 230.

PROGRAMMERS

£6750 — £10,000

Barclays Bank has vacancies for experienced programmers in London and Knutsford, Cheshire.

KNUTSFORD

Applications are invited from programmers who have 2/3 years' experience. A knowledge of COBOL or ASSEMBLER is required, preferably on large Mainframe IBM equipment under MVS. In addition, experience of developments with batch or on-line systems and Structured Programming Techniques is required. A knowledge of TSO using SP, IMS and a financial system would be advantageous.

LONDON

There is one vacancy at this location. Applications are invited from COBOL programmers with 2/3 years' experience. A knowledge of RPG and SYSTEM 34 and WVSU, DFI and SEU, and some experience in the communication programming would be useful. The position is based in Barclays Merchant Bank and therefore some experience in this field would be an advantage. The successful applicant would progress into Systems Analysis work.

The normal fringe benefits associated with working for major Bank will apply, including a non-contributory pension scheme, subsidised restaurant, excellent sports and social facilities and a profit sharing scheme.

Application Forms may be obtained from:

Ken Coplebrook Esq, Manager (Personnel), Barclays Bank PLC, Management Services Department, Redbroke Hall, Knutsford, Cheshire WA16 8ZU or telephone Knutsford (0565) 3888 Ext 2743 or 2744

BARCLAYS

COMPUTER OPERATOR/JUNIOR PROGRAMMER

A vacancy exists in the Data Processing department of The Bank of Insurance and Finance Union for a Computer Operator/Junior Programmer. The successful candidate will be responsible for running an on-line membership records and financial system on an ICL ME29/37. Applicants are invited from persons experienced in TME — CL and 2804 JCL who wish to progress into programming. Experience of an on-line environment and/or COBOL would be useful. Technical references will be required. Salary commensurate with experience.

Applications in writing to: Miss J. Douch, 17 Hillside, Wimbledon SW19 4NJ

Computers

Recruitment Consultant

Kingston £ £ £ + + +

required by expanding recruitment group. Capitalise on your Computer/Recruitment/Advertising talent in our highly paid business. Others have — why not you!

Ring Allan Sanders on 01-549 6441

LIVERPOOL POLYTECHNIC

Computer Services Department

SENIOR ANALYST/PROGRAMMERS

£8,658-£9,231 per annum

The Computer Services Department provides computing facilities to the Polytechnic based on networked DEC 20 and VAX systems, supporting over 150 terminals distributed across 12 sites.

Applications are invited for three newly created senior posts in the Programming Section. Applicants should possess a degree, or equivalent, and should have had a number of years of relevant experience. The successful candidates will each head a small group of Analyst/Programmers in one of the following areas:

1. Applications: Responsible for applications software/packages, applications, engineering and business software.
2. Systems: Support of TOPS-20 and VMS operating systems, networking, micro systems, etc.
3. Administrative Computing: Responsible for the development of a comprehensive Management Information System for the Polytechnic.

These posts offer an ideal opportunity for self-motivated computing professionals to develop their experience and expertise in a stimulating environment using fully interactive networked computer systems.

PLEASE QUOTE REFERENCE No. LP/878.

Closing date is 14 days from the appearance of this advertisement.

Application forms and further particulars from the Personnel Office, Liverpool Polytechnic, Rodney House, 70 Mount Pleasant, Liverpool L3 5UX. Tel. No. 051-207-3801 Ext. 2513.

Real-Time Expertise

£12-17,000+

High technology systems house needs designers and consultants to be involved in development and installation of Air Traffic Control and Telecommunications systems. Familiarity with Assembler or real-time/mathematical languages is desirable. Substantial remuneration package and relocation offered. Ref. 2402/A

Analyst/Programmer

£14-15,000

Commercial or financial systems analysis skills coupled with an IBM Cobol background are required to fill four new vacancies. Candidates must be able to demonstrate real achievement in their career to date. Ref. 2402/B

VME/B Systems Programmer

£10,000

Well-known retailing organisation specialising in leisure and electronics products requires systems programmer to support their 2966 systems. A minimum of two years' VME/B experience is required, at least six months must have been in technical support. Ref. 2402/C

Analyst Programmer — HP

£8-15,000

A rapidly growing systems house requires more staff with knowledge of IMAGE, QUICK, QUIZ, etc. Minimum acceptable H.P. experience is two years and the rewards offered will depend upon how much relevant additional experience candidates can offer. Ref. 2402/D

Analyst/Programmer

to £11,000

Mini manufacturer specialising in information capture systems, seeks analyst/programmer with experience of commercial real-time systems. A minimum of two years' high level language programming and the ability to deal with users is essential. Excellent career prospects. Ref. 2402/B

Computer Professionals

4, Kendrick Mews, London SW7 3HQ Tel: 584 8790

Office Systems

£12,000

Prestigious insurance organisation requires analyst programmers to introduce automated office systems. Some word processing equipment is in place and candidates should be willing to install more. Many other applications are planned and ability to work with users at all levels is essential. Knowledge of COBOL/BASIC on Wong equipment would be helpful. Ref. 2402/F

Defence/Mathematical Modelling

£12,000

Subsidiary of major group requires Mathematical Modellers to work on Performance Evaluation of Trials Data, Algorithm Development and Pre-Trials Performance Predictions. A good maths degree plus relevant experience is essential. Fascinating projects and excellent rewards. Relocation assistance. Ref. 2402/G

DEC Programmers

£ NEG

Major software and consultancy organisation requires programmers with COBOL or BASIC experience on PDP 11 or VAX hardware. A good standard of education, smart appearance and professional attitude is most important. Competitive salaries and first class training offered. Ref. 2402/H

Micro S/W Development

£9-13,000

Vacancies exist for graduates with a minimum of two years' Assembler programming experience to join an existing team working on microprocessor-based P.O.S. Systems. Software design experience and knowledge of BASIC or PASCAL would be advantageous. Our client offers first-class career prospects. Ref. 2402/J

CP Computer Professionals looks after the professionals.

For further information, write to Computer Professionals quoting the advertisement reference no; alternatively phone Isobel Bruce or David Fletcher on 01-584 8790.

UK AND OVERSEAS SUPPORT SERVICES

CONTRACT OR PERMANENT

TANGENT are a successful systems and software group with offices and work locations around the globe. Our support services are in high demand by many major organisations. We wish to increase our technical strength by recruiting the following computer professionals:

INTERNATIONAL DL1, DATADictionary APL COBOL or PL1, CICS of IMS DB/DC S/38, RPGII COBOL, HP3000	Databases Administrator Analyst All levels Programmer/Analyst Programmer/Analyst	Middle East Europe USA USA
---	--	-------------------------------------

UK COBOL, HP3000 (IMAGE QUERY or VIEW a plus) COBOL, CICS, DL1 COBOL, IMS/DB, IMS/DC a plus NOMAD/RAMIS/INQUIRE COBOL, ICL 2800, VME/B (IMS, TPMS exp. useful) NATURAL, ADABAS COBOL, Jackson Strctd Programming, DL1, CICS Nixdorf 8860 WANG RPGII, S/38	Programmers Programmer/Analysts Team Manager Programmers Programmer/Analysts Programmer/Analysts Programmer/Analyst Programmer Programmer/Analyst Programmer/Analyst Programmer/Analyst	London; Mnchstr. Aberdeen; Berks. Cheshire Home Counties Home Counties Home Counties London London London Essex; London
---	---	--

We will offer excellent rates of pay either contract or permanent to candidates for these requirements. Please contact:

Miss Adella Sterling
TANGENT COMPUTER SERVICES LTD.
102/103 South Street
Ratford
Essex, RM1 1RX
Tel: Ratford (0780) 78021
(24-hour answering service)

MANAGEMENT & EXECUTIVE SELECTION

telephone
01-637 9611

SALES ENGINEERS

Management and Executive Selection has been providing professional recruitment services to the computer industry in the areas of sales, software and engineering for nearly 15 years.

We would now like to offer the opportunity to a sales engineer to broaden his career by selling our engineering consultancy recruitment services to computer manufacturers and distributors.

A field service background coupled with strong sales skills are the essential requirements as well as the ability to work in a thriving team environment.

The position will be based in London and of interest to people earning circa £15,000 p.a.

For an informal discussion ring Faye Ogilvie or Tony McGrath on 01-637 9611.

Suite 201/6 Albany House, 324 Regent Street London W1 **MANAGEMENT & EXECUTIVE SELECTION**

Roche

Roche is a leading international pharmaceutical company. The Authority runs its batch and on-line systems on a 2801 Mainframe under VME 2800. Some 50 terminals are in use and a development programme is planned.

TECHNICAL SUPPORT PROGRAMMER

Applicants should have a knowledge of VME base and superstructure, and be aware of the principles of communication networks. Preference will be given to candidates with a knowledge of PMS. Starting salary will be dependent upon experience. Applications forms available (Quote 2402) from the Chief Personnel Officer, PO Box 88, Munciepat Office, South Street, Rochdale OL10 1XG (Tel: 47474 ext 602) to be received not later than 11th March 1983.

SOUTH COAST

If you'd like to know what vacancies are currently available in Southern Counties and West Country ring Jeff Milsome, Managing Director, CBS APPOINTMENTS, 1 Weston Gardens, Bournemouth (BH2) 321 (01204) or 0202 (evening) (Dove & Widdows) Agt. (2402)

UNIVERSITY OF ABERDEEN

Department of Bio-Medical Physics and Bio-Engineering

RESEARCH ASSISTANT IN COMPUTED MEDICAL IMAGING

wanted to assist internationally-recognised team evaluating NMRI imaging relative to other medical imaging. Computing experience applied to image processing expected, preferably in biomedical. The appointment which is supported by an MRC grant is for five years. Commencing salary will be £6,000 rising to £9,000 per annum on the Range 1A Scale for Research and Academic Staff.

Further particulars and application forms from: Secretary, The University, Aberdeen, with whom applications from suitable candidates should be lodged by 24 March 1983.

PROGRAMMER/ANALYST

ME29

£9-10,000 CROYDON

**WARWICK
WOODWARD**  A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE: 01-734 7394 24 HOUR ANSWERPHONE

Our client, part of a multinational engineering group, is looking for an unclassifiable kind of person. Not only a programmer with a keen interest in analysis — but someone who is willing to take part in all the functions of the d.p. department.

Reporting directly to the DPM, you will be expected to make a significant contribution to the running of this busy d.p. department. Your initiative and technical skills will make you an ideal candidate for moving into a supervisory role.

Ideally you have a background in COBOL programming, preferably gained on ICL ME29 or 2903/4 at a small installation, working in a commercial or manufacturing environment. Possibly you are seeking a fresh start — new source of inspiration. Our client can give you both. Not only responsibility, but also training in the uses of ME29 and design, and the stimulation of working in a progressive development environment.

If you feel that you have the all-round skills necessary to match this demanding role, telephone Sandra Hersh on 01-734 7394 during office hours — or on 01-458 6988 evenings or weekends.

Systems Programmers

County Durham to £10,500 + Relocation

We are recruiting on behalf of a major Multi-National Company, involved in the manufacture, retail and distribution of a wide range of engineering products for the industrial and domestic markets.

A recent major policy decision has meant that our Clients now wish to augment their Regional Computer Resource by extending their technical support team with ambitious and forward thinking Systems Support Professionals.

The Corporate Management Services Department provides computing facilities to over 10 Companies within the Group through 4 Regional Computer Centres. The Durham Computer Centre supports the largest UK manufacturer and market leader in each of its product ranges, through systems developed on an IBM 4341. The Centre now requires a further 2 Systems Programmers to join the Technical Support Team which provides software services to applications development and operations staff, with additional responsibility for the support of Personal Computing facilities and micro computer software.

The hardware operates under VM/DOS/VSE, and candidates are expected to be familiar with the installation and maintenance of software, and have experience of at least one of the following: DOS/VSE,

CICS/DLI, VM/SP, but other software skills gained within an IBM environment will also be seriously considered.

Seldom are such doors opened, and consequently candidates should grasp the opportunity and contact **BRIAN MITCHELL** on 061-833 0427 or 061 485 7798 (Evenings & Weekends before 9 pm).

Interviews will be held in Durham, Leeds, Manchester, Birmingham and London.



"Open this door
for a
brighter future"

Specialist Computer Recruitment Ltd

SOUTH
James House, 46 James Street,
London W1M 6H8
01-495 0671/495 0481

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Coventry, Birmingham B3 3JY
0273-255 9761

NORTH
International House, 64 Deansgate,
Manchester M3 2ER
061-853 0427

BRISTOL
Avenue Louise 327,
Bristol 4, 1050 Bristol
0117-922-840/1171

HOLLAND
Willemsoordweg 82,
1071 J.M. Amsterdam
010 9120-760947

RECRUITMENT

LONDON/BRISTOL
T.C.R. are seeking to expand their range of Advertising and Recruitment services to the Data Processing Sector by the addition of a number of Consultants. The people we are looking for will preferably be able to demonstrate a good track record in a similar role, alternatively experience of senior level within a computer services or sales environment. Probably aged between 25 and 35 the successful candidates will have a good level of education and possess the interpersonal skills necessary for these challenging and rewarding positions. We would be particularly interested in taking to Midlands-based consultants capable of taking on Managerial responsibilities in the near future. A very high level of income is envisaged for those with the ambition and determination to succeed, the remuneration package consisting of basic salary, commission, guarantee, bonus, health care plan and company car where appropriate.

TEAM LEADER

CITY
Our clients seek a mature, technically orientated individual for a key role within their expanding Systems Development group. The preferred candidate will have the ability to provide support, advice and guidance to design and programming staff in a CICS-COBOL environment and it is anticipated that management/supervisory responsibility will follow. Genuine career prospects together with a number of exciting projects make this an outstanding opportunity.

CENTRAL LONDON

PL/1

We are looking for a number of PL/1 Programmers and Analyst Programmers with around 2 years' experience for two highly recommended installations. Further development work has created the need in both cases and the opportunity to work with on-line and database systems is offered with career being a feature for Analyst/Programmers.

SYSTEMS DESIGNER

A major company in the financial sector requires a Systems Designer. The requirement involves the detailed technical specifications and provision of guidance to programming teams. Experience with COBOL, PL/1, IMS or CICS and the ability to communicate effectively with all levels would provide the opportunity to develop your skills more fully in an environment which provides ample scope for advancement.

ANALYST PROGRAMMERS

One of the largest IBM installations in the world are currently seeking ANALYST PROGRAMMERS. This prestigious company can offer advantages commensurate with their status — a good working environment and the benefit of their name and position to add to your track record. In line with their (seriously VSE) with a banking or insurance background useful. There is also considerable scope for future career advancement within the DP Department.

ANALYST PROGRAMMER

CITY
Our clients are currently seeking an Analyst Programmer with banking experience to be used in a world wide supervisory capacity. The salary and benefits would be of interest to those seeking a more responsible and stimulating environment. The suitable candidate will be articulate and resourceful and will have experience in IBM GSD equipment with at least 2 years' RPG II including coding, testing and documentation. Constant on-the-job training will help you keep abreast of current developments. This post offers opportunities to quickly develop career potential.

SYSTEMS PROGRAMMER

CITY
A large American bank in the city currently requires a systems programmer with DOS VSE VM/CMS CICS DLI. A good opportunity for those wishing to enter a banking environment. A full range of benefits as well as negotiable basic salary and excellent career prospects.

PL1 PROGRAMMER

WEST LONDON
Do you have a minimum of 2 years' experience and a real knowledge of CICS and MVS? Are you interested in sales and marketing support systems? Do you wish to enter a vigorous market-orientated company interested as much in your future training and prospects as in its own success?

If so our client, a famous name in sales and marketing, can offer a truly comprehensive benefits package in addition to an excellent basic salary. Real career opportunities and a pleasant working environment.

PROGRAMMERS

Two exciting opportunities have arisen for persons with strong BASIC, BASIC+ or +2 programming backgrounds gained in a DEC environment. A major specialist Systems House is seeking further staff for its Banking systems client support group in London and abroad. An attractive salary range, reviewed at 6 monthly intervals, is supplemented by a generous company benefits package.

PROG. & SYS. ANALYST

An Essex-based company has requirements for a Programmer and Systems Analyst to join their financial applications development team working on newly installed ME29 equipment. Analysts with 2 years' formal Analysis and Programming with 3 years' ICL COBOL will be rewarded with good salaries and a valuable benefits package.

ANALYST & ANALYST/PROG.

CITY
Our client, a leading insurance group, is seeking a Senior Analyst and Analyst/Programmer for major projects development. At least four years' design experience is required for the senior post and two years' at a similar level for the Analyst/Programmer, an ICL, VME/OME, Cobol background is desirable in both cases. An excellent benefits package, including subsidised mortgage and bonus scheme, is offered.

PROGRAMMERS

CITY
Expansion of a major International Bank's E.O.P. team affords exciting opportunities for Programmers with at least 2 years' experience in banking or related applications. The work involves the development of systems utilizing DEC equipment and a Basic/PL/1 background would be of great interest. A negotiable salary is augmented by a full Banking Benefits package.

SYSTEMS DEVELOPMENT SUSSEX COAST

Our client is about to embark on an aggressive development programme using an ICL 2946 with IDMS, STATUS, PROSPER and other databases. They require additional staff with a sound COBOL background to strengthen their small friendly team. A knowledge of IDMS is preferred but training will be given if necessary.

ANALYST/PROGRAMMER

Acting as assistant to the Data Processing Manager, you will specify, design and implement systems enhancements and developments. A minimum of 3 years' ICL COBOL is essential and preference will be given to applicants with on-line systems experience.

SENIOR PROGRAMMER

A Senior Programmer or Programmer/Analyst is required to be responsible for maintaining a stable operating environment and assist in all aspects of system development. You will also be responsible for program specification and design through to testing and implementation. Extensive COBOL programming experience and a good grounding in DME utilities is essential. IDMS or on-line programming experience will be advantageous.

A significant benefits package includes relocation assistance if necessary.

Please reply quoting Ref: RIR

EiGER
Management Limited

01-681 7748/2141

77 Watlington Road, Croydon CR9 2JA

AN ETHICAL SERVICE FROM PRACTISING COMPUTING CONSULTANTS

Cambridge CAD/CAM

Programmers

To £12,000

We have been retained by one of the industries most exciting and fast growing CAD/CAM companies to recruit for them a number of Programmers to develop a sophisticated range of software products.

The company is committed to a continual programme of research and development in the area of CAD/CAM, particularly 3D Modelling Techniques, numerically controlled Machine Tools, sophisticated Database techniques and the broadening of applications from Mechanical and Electrical Engineering into other areas of industry.

They have, in-house, a large Prime Mini-computer dedicated to this development work and this is networked to a number of other machines within the organisation. A wide variety of Graphics Display Equipment is installed for the development of Graphics Software.

Applicants will be graduates and have a good working knowledge of Fortran gained in a technical environment. It is expected that for the 3D Modelling position, candidates will either have a strong mathematical background or some specialist experience in Modelling/3D Graphics.

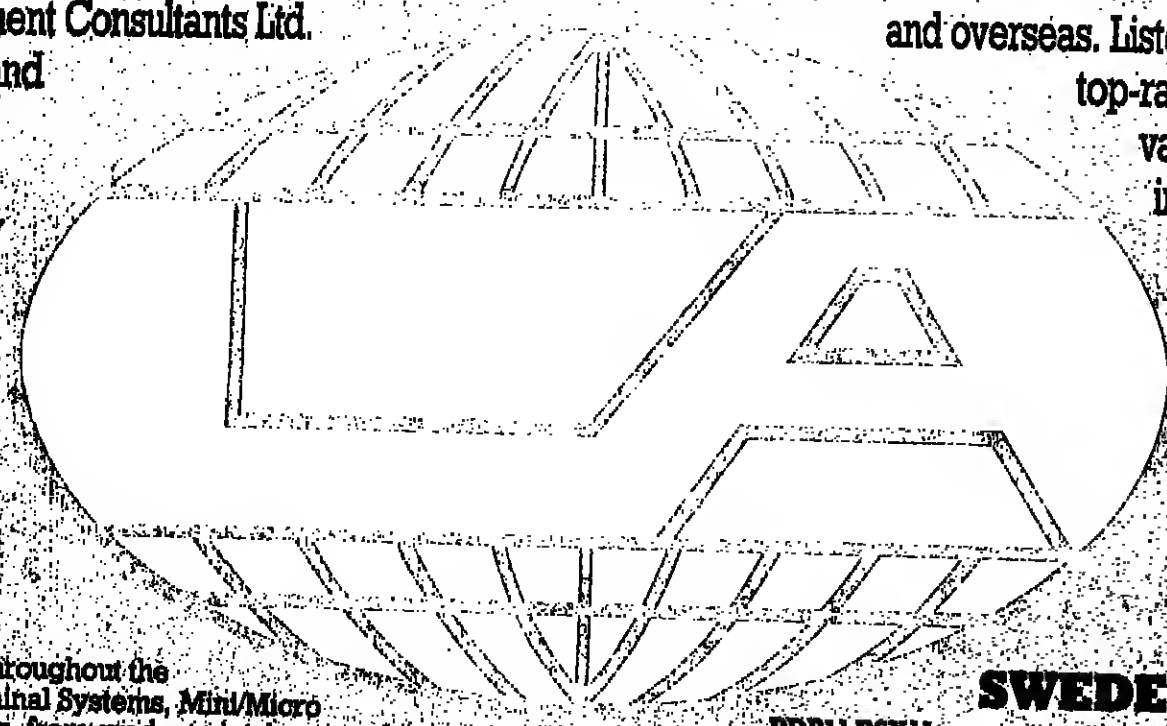
This is a unique opportunity to join a company whose success to date outstrips any of its nearest rivals.

Please contact David Hendry.

**Ferguson Thorley Bowles
Associates Limited**
International Personnel Consultants
15 Clarence Street, Staines, Middlesex TW18 4BU
Telephone: Staines (0784) 59247 Telex: 881414

ARE YOU A PROFESSIONAL GO INTERNATIONAL WITH LA

L.A. International Management Consultants Ltd. are specialists in Contract and Permanent recruitment. Associated with companies on 3 continents, we urgently require ambitious professionals for vacancies in this country



and overseas. Listed below are a selection of top-rate permanent and contract vacancies for leading companies in the UK and overseas. The cost of a telephone call you could save by rewarding your

SALES

Sales vacancies exist with clients throughout the U.K. in Data Communications, Terminal Systems, Mini/Micro Distributive and Mainframe Systems, from graduate intake to senior management level. Confidential interviews arranged.

SALES SUPPORT

NORTH WEST
DEC mini/micro software support. Sound knowledge of micro/min systems software + DEC/VAX distributive networks. Major international company. Good career prospects. **c.£10,000 + car**
MIDLANDS
New IBM Packard hardware software experience preferred but not essential. Pre post sales support role. Involves Query COBOL. **£11,000 + car**
WILTSHIRE
IBM 4341. Program and Systems Designers. **£10,000 + car**

SWEDEN

PDP11 RSX11 VAX11 VMS
FORTRAN Programmer
FORTRAN Programmer
£700 per week
+ Accommodation Allowance + Return Air Tickets
+ Insurance Cover

NORWAY

IBM MVS IBM SYSTEM 34 RPG11 IBM SYSTEM 34 RPG11
Systems Programmer
Programmer
Analyst/Programmer
£700 - £800 per week
+ Accommodation Allowance + Return Air Tickets
+ Insurance Cover

NORWAY

We are looking for **SOFTWARE SUPPORT CONSULTANTS** with software expertise gained within an IBM environment, utilising large network technology is required. Knowledge of CICS/DLI within the following areas:

Data Communications Specialist
Data Administrator
CICS Network Specialist
Top Rates per week
+ Accommodation Allowance + Return Air Tickets
+ Insurance Cover

SINGAPORE

IBM MVS/ESA DMS & IMS or ADABAS

We are looking for **PROJECT LEADERS** with advanced technical support knowledge and **SYSTEMS DESIGNERS**.

Top Rates per week + all benefits

SAUDI ARABIA

IBM MVS/ESA CICS Systems Programmers

Top Rates per week + all benefits

U.K.

ICL ME23 DME TPS COBOL **ICL 2900** Operations S.C.I. Writers
Programmer
ICL VME/3 COBOL Programmers **PDP11 RSX11-M** Programmers
ICL VME/3 COBOL Analysts **IBM COBOL/CICS Programmers**

For further information on any of the above vacancies please ring or send C.V. to address below.



0782 279099

After office hours contact Paul for **CONTRACT** vacancies on 0782 659990.
PERMANENT vacancies ring Derek on 081 988 6008.

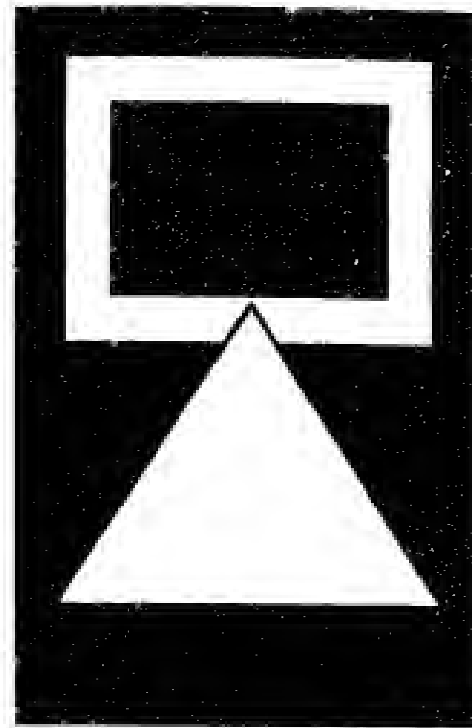


L.A. International

OVERSEAS

Phone for details of permanent vacancies OVERSEAS

L.A. International Management Consultants Ltd., Norwich Union House, Trinity Street, Banley, Stoke-on-Trent ST1 5LJ



Durst®

**WARWICK
WOODWARD**

A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE: 01-734 7394 24 HOUR ANSWERPHONE

Programmer/Analyst Programmer

System 38

£7,500 - £11,000

Durst UK, a British company-based in Epsom, Surrey, is part of an international group designing, manufacturing and selling photographic, printing, processing and enlarging equipment worldwide. Durst have a total commitment to Data Processing, which is highlighted by their development of a wholly interactive system, advanced process control and office automation.

They are now seeking to recruit one programmer/analyst and one programmer to assume a total development role. The successful applicants will have a minimum of 6 months RPG III experience; the programmer/analyst also having a sound knowledge of C/L and utilities, backed up by a solid GSD grounding. Also required is a desire to progress within the company plus the technical skill and personality to make a significant contribution to the running of this busy d.p. department.

If you feel that you have the ability and the enthusiasm to fulfill one of these demanding roles please contact Nick Clements on 01-734 7394 (Office hours) or on 01-546 7813 (evenings and weekends).

SOFTWARE TRAINING OFFICER

Hertfordshire

c.£12,000

The Job

To develop and run a range of courses including VM/CMS; Unix; Pascal & 'C' and to actively participate in the determination of training needs for software projects.

The Person

Will have a relevant training background supported by practical project experience and the maturity to make a significant contribution within a professional Training & Education department.

For further information

Phone or write to either Brian Kelvin or Chris Turner at:
Six Hills House,
London Road,
Stevenage,
Herts SG1 1YB.
Tel: (0438) 726161.

ITT - IDEC

An expanding company with



requires a rather special Sales Executive.

Big ideas, and a philosophy which puts them into practice.

At ADAS, we have over 20 years' experience in providing a complete range of software and hardware solutions for the transport industry. We are currently looking for a Sales Executive to join our team. The successful candidate will be responsible for the sale of our products and services to the transport industry. We offer a competitive salary and benefits package. If you are interested, please send your CV to: ADAS, Box 1, Wotton, Oxford O11 1AA.

£10k basic (£20k on quota) - Midlands

You will be responsible for the sale of our products and services to the transport industry. We offer a competitive salary and benefits package. If you are interested, please send your CV to: ADAS, Box 1, Wotton, Oxford O11 1AA.

CFL Marshall House, Coventry



OEM Sales Executives

A new UK Manufacturer for Computer Peripherals

**Southern/Western
Counties**

**Northern/Eastern
Counties**

c.£10,000

**+Unlimited Commission
Company Car**

Our Client designs and supplies complete Winchester disc sub-systems, which through a range of host adaptors and disc operating software can be linked to most popular micro and mini computer systems. They are also the sole European representatives for a range of leading American 5 1/4" Winchester disc drives and plans are well advanced for them to become their UK manufacturer. In addition, the Company has captured the marketing rights for a range of complimentary peripheral products.

This highly competitive portfolio is sold and marketed direct and via accredited distributors throughout Europe, with full technical support and after sales services provided, and has attracted in less than one year multi-million pound OEM contracts.

Because of this rapid expansion, our Berks based Client now seeks to appoint two competent OEM Sales Executives capable of maintaining existing and developing new OEM business by negotiating directly with large end users, initiating sales seminars/exhibitions and providing sales information and training to the dealer sales forces.

Preferably aged 25/35 years you should have an electrical/electronic engineering qualification, and have a successful track record in selling computer peripheral products to OEM markets. However, you will be given serious consideration if you are currently holding a technical customer support role in a related field and strongly desire a career in sales.

For further information write to **Peter Dudgeon** or telephone him on **01 935 0671** (24 hour answering service) or on St. Albans 37702 evenings between 8.00-9.00pm.

Technical Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH
James House, 46 James Street,
London W1M 5HS
01-935 0671/486 0481

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Queensway, Birmingham B3 3JY
021-235 3761

NORTH
International House, 64 Deansgate,
Manchester M3 2ER
061-333 6427

BELOUW
Avenue Louise 327,
Boite 4, 1050 Bruxelles
019 322-648 7161/71

HOLLAND
Willemsparkweg 92,
1071 H.M. Amsterdam
010 3120-766947

Customer Engineers

This is your opportunity to join Storage Technology, world leaders in the design, manufacture and supply of IBM compatible data storage products.

With our policy of close co-operation from research and development through to after sales service we aim to ensure that our products meet the real needs of our customers.

That is why we need customer engineers who are a cut above the rest

— high performers to complement our

reputation and our success.

Naturally, we offer the rewards to match:

- A highly competitive basic salary
- Generous overtime and standby allowances
- 2 litre company car
- Free private medical insurance
- Life insurance and company pension scheme
- On-going product training.

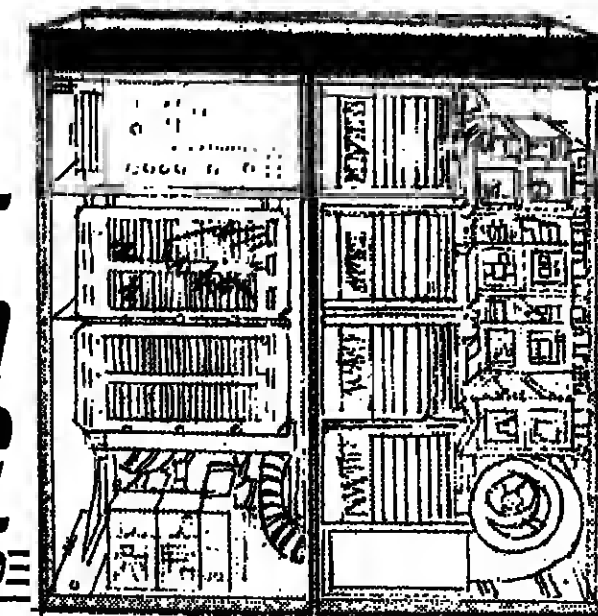
Substantial growth in our installed base in the UK means expansion of our field service

teams countrywide. Many opportunities exist in London and the South and we also have openings in the Midlands and the North.

If you have a good knowledge of IBM and/or IBM compatible systems and peripherals, specifically tapes, disks and printers; if you can combine technical ability with good customer relations skills, we would like to hear from you.

Write now with full personal and career details to our Personnel Manager, Storage Technology Limited, Churston House, Portsmouth Road, Esher, Surrey, or telephone Esher (0372) 67041 for an application form.

**High
performance
professionals for
high
performance
systems**



**STORAGE
TECHNOLOGY**
Fulfilling the
promise of technology.

AID EMPLOYMENT LTD.

29-33 Central Chambers, Ealing Broadway, London, W5 2NR
Telephone: 567 8184

Clyde Perkins and Roger Hayleek wish to announce the launch of their new Business Aid Employment Ltd. — a Computer Recruitment Consultancy specialising in Contract and Permanent Systems Programming, Operations and Word Processing assignments.

They would like to place on record their appreciation to all of you who registered with them over the last ten years and extend an invitation to old and new friends to join them in their new venture.

Please telephone Clyde, Roger or Stephen Hooks at the above number or complete and return the registration form at the bottom of this coupon.

AID — the Company with the name and the aim to help.



AID EMPLOYMENT LTD., 29-33 CENTRAL CHAMBERS
EALING BROADWAY, LONDON, W5 2NR Tel: 567 8184

Name _____ Age _____

Address _____ Years in D.P. _____

Work No. _____

Tel. No. _____

Please tick: Contract ☐ Permanent ☐ Operations ☐ P & P ☐

CONTRACTS

IBM COBOL, BASIC, PROGS, LONDON

TAB — REPORTER

IBM SYSTEM 34, ANAL/PROGS, LONDON

COBOL

IBM SYSTEM 34, ANAL/PROGS, LONDON

APRIL

IBM PL/I, BASIC, ANAL/PROGS, LONDON

DB/DC

IBM 3090, COBOL, ANAL/PROG, BRISTOL

IMAGE/QUERY

IBM SYSTEM 34, OPERATOR, CROYDON

IBM

TP

Telephone
01-686
5656

Wordprocessing Sales

Move into the fast lane

Our client is one of the leaders in the WP market. They have an excellent reputation and their installed base includes many household names from the private and public sectors. The product range is diverse and is being continually enhanced. To increase their considerable penetration of the market, they are developing a professional indirect sales force.

Right now, you are probably selling WP, micros or related products and are looking to be your own boss, whilst maintaining your high earnings. You've considered going self-employed before, but rejected it because of the high initial costs involved in setting up the necessary organisation.

Our client offers first-class products and back-up, and an extensive network of offices in the UK to give you a local convenient base. You will receive all the assistance and training you need to prepare quotations, answer prospect enquiries and demonstrate equipment.

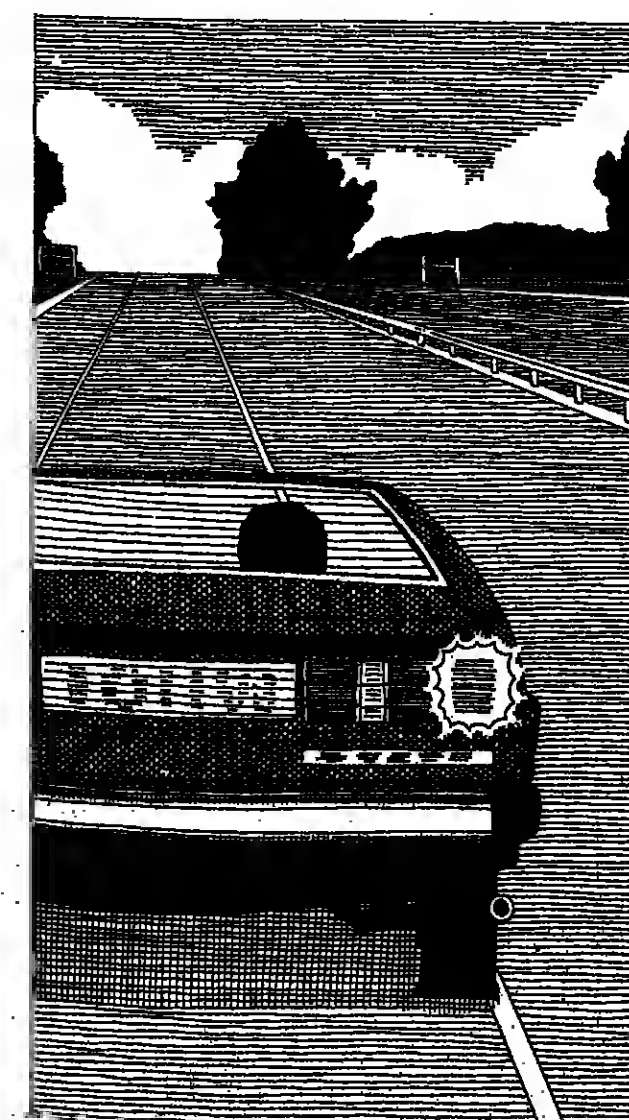
The only missing ingredient is you and your desire to earn in excess of £20,000. A generous commission scheme makes this a reality to hard working speciality sales professionals.

Change gear towards independence and contact Peter Lloyd on 01-242 9356, OCC Computer Personnel, 16 Bedford Row, London WC1R 4EB.

Quote reference W743-L

01-242 9356
24 hour answering service

occ computer personnel
Recruitment Consultants, 16 Bedford Row, London WC1R 4EB



OCC
London

Shift Manager

Central London
up to c. £12,000

What is a shift manager in urban passenger transport, with a responsibility for the safety of the public and the industry? Expanding to keep pace with user demands, we are looking for a dynamic person to join our Operations team, in the capacity of Shift Manager, based initially at our Data Centre near Oxford Circus.

Currently our hardware includes IBM 3033, 3031, 4300s, 8100s, and an ICL 2960, servicing extensive real-time and on-line systems, with a large, rapidly expanding telecommunications network.

The successful applicant will have a minimum of four years' Data Processing experience, part of which should have been at Shift Manager level. The applicant should have experience of all major aspects of operations management, with knowledge of current IBM hardware, software and data communications.

The jobholder's duties will include the on shift supervision of computer staff engaged in operation and support of mainframes and the network control facility at our Data Centres. Additionally, the postholder will assume first line responsibility for all Data Centre functions outside normal office hours.

All in all, we can offer you everything you need to use and develop your skills, and obtain job satisfaction. Career prospects are excellent, and in addition to competitive salaries, you will enjoy valuable FREE TRAVEL on all London Transport services, and other travel benefits on British Rail for you and your family.

LONDON TRANSPORT

Phone Audrey White on 01-227 3853 for an application form or write to her at Central Personnel, 55 Broadway, London SW1H 0BD, quoting reference CDV 6334E. (2657)

Severn Trent Water Authority
DERWENT DIVISION

Data Processing Officer

£13,088-£14,544 p.a. plus car allowance
Based at Divisional Headquarters, Derby

The Authority has recently approved a new computer strategy to be implemented throughout this decade. The major elements of the strategy provide for mainframe computing on an integrated distributed network between the eight Divisional Headquarters locations and Regional Headquarters.

This is the senior data processing position in the Division and the post holder will report to the Assistant Divisional Manager (Services).

Duties will include contributing across the whole range of information technology issues in the Division as well as existing regional management with the Authority's implementation of information technology.

Candidates must have a depth of experience of managing the production services side of a computer department, incorporating computer operations, data preparation, data control, scheduling and associated aspects. Further, involvement in development and maintenance of computer systems from feasibility study through to testing and implementation is essential. An appreciation of the concepts of databases and previous water industry experience, as well as applying should have a minimum of seven years' relevant experience in data processing, together with a good degree, preferably in a numerical discipline.

Application forms, quoting reference OPL, are available from the Personnel Department, Severn-Trent Water Authority, Derwent Division, PO Box 51, Raynham, Derby DE2 7JA. Telephone: Derby 601461, extension 316 or 320.

Closing date: 10th March, 1983.
This post is open to both men and women. (2673)

ANALYST/PROGRAMMERS Real-Time Systems to £11K

Located in the delightfully situated market town of Guleborough in the Cleveland Hills, close to the coast, Yorkshire Moors and the Dale, these posts offer outstanding opportunities in the Real-Time Industrial and defence systems areas.

Applicants should have real-time applications experience and preferably a background of PDP or VAX with RSX or VMS and CORAL or FORTRAN.

Working within a major Systems Services Group career prospects are good with vacancies ranging from Programmers to Project Leaders. Opportunities for project experience on a wide variety of applications exist in all areas.

For further details, or to apply, contact Steve Sykes on Leeds (0532) 455911 during office hours, or on (090484) 350 evenings and weekends, or write to the address below, quoting reference CW848



LORIENT

COMPUTER SERVICES

Lorient Computer Services
Recruitment Consultants
OCS House, Servia Road
Leeds LS7 1NJ
Tel Leeds (0532) 455911

BASIC + PROGRAMMER/ANALYST TO £12,000 + CAR

We require a Programmer/Analyst well-experienced and highly competent in writing in Basic Plus under RSTS/E.

Our applications software until now has been written by a software house but we wish to become self-sufficient within a reasonable time after this appointment. Our system runs on a Sytelme 6400 covering a wide range of applications. We need to add to this range and to adapt current programs to meet user requirements as the company diversifies and grows.

This is a senior position in the company leading later to management of the D.P. function. Benefits include company pension, medical insurance, and discounts on company products.

Please write giving full details of experience to:

Mr E. M. Hicks
Essey Gorman (UK) Ltd.
870 North Circular Road, London NW2 7JR. Tel: 01-450 9611 (2642)

SAUDI ARABIA COMPUTER FIELD ENGINEER

Leading N.C.R. distributor in the Eastern Province of Saudi Arabia requires the services of a

The successful applicant will have had previous experience in the servicing and repair of the N.C.R. range of retail and financial systems.

Good career prospects and excellent salary. Age 25/35, single status contract, free accommodation and air tickets to the U.K. for every leave period, plus company vehicle provided.

Apply in confidence to: Mr Peter E. Brown, Mr and B Overseas Services Ltd., 57 High Street, Tarpotley, Chichester, Tel No. 02523 5468

Deborah McGovern, Personnel Officer, Acorn Computers Limited, Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN

BUSINESS SYSTEMS PROGRAMMER

As a leading British company in the design and development of microcomputing systems, Acorn Computers have achieved outstanding success. We are now looking for a Programmer with flair, imagination and excellent communication skills to join our business systems group.

Candidates should have an Assembler programming background and at least three years' experience of microcomputer systems. The ability to schedule projects is essential.

Experience, at a technical level, of any of the following would be an advantage:

CP/M, MP/M, MSDOS, UNIX, XENIX, word processing, business graphics, PASCAL, MODULA-2

Please send written cv to: Deborah McGovern, Personnel Officer, Acorn Computers Limited, Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN



MIDLANDS AND NORTHERN REQUIREMENTS

IBM 4341
IBM 4341
IBM 4341
IBM System 38
ICL ME29
ICL 2900
ICL 2960

MVS, IMS, DB/DC, DCL1
DOS/VS, CICS
MVS JES 2, VTAM, MSHF
MAAPICS (SCOTLAND)
TME
VME/IB, IDMS
DME & VME/IB
DRS EQUIPMENT
VRT II
SYSTEL

COBOL and PL1
COBOL
COBOL
RPG 111
RPG 11 & COBOL
COBOL

ANAL/PROGS
ANAL/PROGS
SYST/PROG
PROGS
ALL LEVELS
ALL LEVELS

PROGS
PROGS
PROGS
ANAL/PROG
PROG

DEC PDP 11
VAX 11/750
HP 1000/3000
Honeywell DPS 8
IBM 8100

DPCX

MACRO ASSEMBLER

IBM DATA BASE ADMINISTRATOR to provide advice and guidance to an applications development team for IMS and data base developments

SOUTHERN REQUIREMENTS

IBM 4341
IBM
IBM 4300
IBM 4300
IBM 4300
IBM System 34 & System 38
IBM 3033
IBM 3033
IBM
ICL 2900
Burroughs 2 x 6900
Honeywell DPS Mod 82
CTL

VM/VS, CICS
OS, ADF, DL1
DOS, VSAM
DOS/VS, CICS
ADABAS/NATURAL

COBOL
COBOL
ASSEMBLER
RPG II and RPG III

SYST/PROG
ALL LEVELS
SNR. PROG
PROG
ALL LEVELS
ANAL/PROGS
PROGS
ANAL/PROG
PROG/ANAL
PROG
PROG
OPERATOR
PROG

COBOL/MARK IV

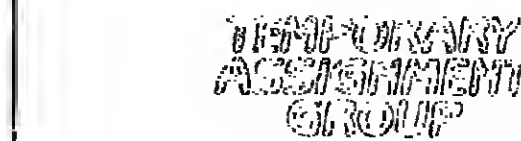
COBOL

MVS, TCAM
MVS COMMUNICATIONS
TSO/SPF
VME/IB, IDMS/TPMS
DMS 11, GEMCOS,
GCOS

ADABAS/NATURAL
GRAPHICS/INTERGRAPH
GNPHX

ALL LEVELS REQUIRED
CONSULTANTS
ALL LEVELS REQUIRED

Contact: MANAGER, Group 01-455 6671 or 01-457 5086 (evenings 8.00-9.00pm)



Specialist Computer Recruitment Ltd

SOUTH
James House, 46 James Street,
London W1M 5HS
01-833 0671/488 0481

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Queensway, Birmingham B3 3JY
021-238 3781

NORTH
International House, 84 Deanegate,
Manchester M3 2ER
061-833 0427

BRISTOL
Arms Road 327,
Bristol 4, 1050 Bristol
010 322-640 7161/71

HOLLAND
Williamspleinweg 92,
1071 H.N. Amsterdam
010 3120-768847

IMMEDIATE CONTRACTS

WANG VS80 COBOL
VAX/VMS COBOL SYSTEL
ICL 2900 COBOL IDMS
MOTOROLA 6809 ASSEMBLER
DATAPoint ARC - Belgium
CORAL/RTL2 MASCO - UK/Holland
IBM ASSEMBLER/TSO - Switzerland
SEL 32 MPX - France/Belgium
IBM COBOL MVS JSP
IBM MVS ASSEMBLER JES2, Sys/Prog.
IBM MVS COBOL IMS DB/DC
PROCESS CONTROL - HERTS

Reference

\$930

\$958

B944/J911

L908

\$895

\$853

\$936

\$862

\$852

\$836

\$889

\$823

For further details call now!

(2658)

Knight
01-491 4706
Knight Computer Services Limited

Transportation in Staffordshire

SYSTEMS ANALYST/COMPUTER
PROGRAMMER
TRANSPORTATION PLANNING
POST NO 3002084 - SALARY GRADE SO1/SO2
(£8,858-£10,071)

Applications are invited from suitably qualified and experienced persons for the above post in the County Transportation Unit.

The County operates an IBM 4341 system using VM/CMB and there is a remote VDU situated in the County Planning Department for Transportation planning use. In addition the Transportation Unit has the use of an on-line telegraph plotter.

The successful applicant will be expected to control the use of, and to maintain, and further develop computer programs for transportation planning. Preference will, therefore, be given to applicants who have a knowledge of transportation planning systems. An ability to program in Fortran is essential. It would also be considered an advantage if the applicant had knowledge/experience of an API, packages ADI and ADPS.

Applications (no forms), giving full particulars of age, experience, qualifications and present appointment, including salary together with the names and addresses of two referees should reach the County Planning and Development Officer, Martin Street, Stafford ST16 2LE by 14th March, 1983. Relationship to any member or Senior Officer of the County Council must be declared.

All applicants are asked to note that it is the County Council's view that it is desirable for their employees to be members of an appropriate Trade Union.

STAFFORDSHIRE COUNTY COUNCIL

BEDFORDSHIRE

Systems Programmer
Operations Analyst
Cobol Programmers
£13,500
£9,110
£9,000
c.v.s to: KEYNES PERSONNEL, 354 SILBURY BOULEVARD
CENTRAL, MILTON KEYNES (2700)

PROGRAMMER

You could put your talents and experience to good use by joining this international oil and petrochemical engineering contracting company's Management Information Services Department at their Leicester Square head office.

There will be plenty of opportunity to design, develop, test and implement new systems, as well as maintenance of existing systems. It will involve the conversion from an existing system to an IBM 3033. Applicants should have at least two years' working experience with using COBOL in an IBM MVS environment and be willing to work in a team on ADS-ON LINE and POCUS in an IDMS database environment.

Personnel, Purchasing, Accounts payable, Engineering and Cost Control Systems are the areas where your experience will be put to use.

An excellent salary, free private medical insurance, pension scheme etc. will be offered.

If you feel that you can meet the bill, please Mr Gerald Penford Manager, Catalytic International Inc., 48 Leicester Square, London WC2H 7LZ. Tel 01-830 4377. No agencies please.



MANAGEMENT & EXECUTIVE SELECTION

telephone
01-637 9611

ENGINEERS

MES Engineering Division has been recruiting all levels of engineers for the computer industry over the past seven years.

Below are a selection from our current vacancy file.

Look out for our weekly feature on engineering opportunities.

SENIOR ENGINEER

London to £12K BASIC + car
Experienced field engineer with micro expertise, good communication skills, commercial awareness. Sophisticated business systems. Leading to management. (2301).

FIELD ENGINEERS

UK wide to £8-10K + O/T + S/BY + car
All levels. Mini/Mainframe/Perl. background. Major manufacturer offers on-going training and latest technology. (2302).

CUSTOMER ENGINEERS

London/H. Counties to £10K + O/T + S/BY + car
18 months' experience, DEC an advantage. Technical applications. (2303).

FIELD ENGINEERS

Throughout UK to £8.5K + O/T + S/BY + car
Two years' field experience in mini/micro environment for career opportunity with leading manufacturer. (2304).

For more details ring:
Chris Bond or Keith Donovan on 01-637 9611.

Suite 201/8 Albany House MANAGEMENT &
324 Regent Street London W1 EXECUTIVE SELECTION (2672)



OPPORTUNITY IN SYSTEMS PROGRAMMING £10,000-£11,000 W.I.

Amoco Europe Incorporated is an affiliate of Standard Oil Company (Indiana), one of the six largest U.S. oil companies.

The Systems Support group is part of the large Information services department, based in the new London Data Centre, incorporating a dual IBM 4341 configuration. It provides computing facilities via a complex telecommunications network to various affiliated companies in the U.K. Europe, and West Africa.

Due to expansion and the current conversion from VM VS1 to VM MVS, a superb opening for a systems programmer has arisen.

At present you are either an applications programmer in an IBM site, having used COBOL, FORTRAN or Assembler for approximately 2 years, or a junior systems programmer using MVS. Educated to degree level, you have a strong technical interest and the potential to seize this exciting opportunity to join a highly professional systems team. Formal training will ensure that your skills will encompass all areas of the systems development including teleprocessing and a wide variety of hardware and software products.

Amoco offer both the salary and full range of company benefits that one normally associates with an international oil company. Thus, if you are a self motivated and talented individual telephone Sandra Hersh on 01-734 7394 during office hours or on 01-458 6988 evenings and weekends.

WARWICK
WOODWARD

A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET LONDON W1V 7PA
TELEPHONE 01-734 7394 24 HOUR ANSWERPHONE

WHEN COMPANIES TALK ABOUT EXPERIENCE THEY OFTEN MEAN FAMILIARITY...

We all know what that breeds!

Staying in one user environment: well, in career terms, that's a big hazard. Wouldn't you give your right arm to get in on the most up-to-date, the most prestigious IBM System/34, /38, /23 and Series 1 projects? And with each project assignment lasting around an average of nine months, log continuous new applications experience - and benefit from a policy of killing senior management posts strictly by promotion.

At Altergo we provide project management and software support for small business system users - today's fastest growing OP market. Clients come from all industries and in all sizes: from divisions of giant multinationals, right down to virgin first-timers. Most are in Britain; an increasing number are overseas. The common Altergo link is service: we react fast, we react professionally - and with just the right mix of management skills and technical support. The mix that's made Altergo Europe's leading IBM specialists. Right now we need:

PROJECT LEADERS and ANALYST/PROGRAMMERS

Ideally with System/34 or System/38 project experience, using RPG II/III, alternatively we have a number of vacancies for men and women with Series 1 RPS or System/23 Basic experience.

To join us it's imperative you match our sense of adventure and our confidently aggressive stance: we've never found a market that responds to reticence. Since our client list reads like Fortuna's Top 200 it's ambassadors we want to recruit - not academics. You are probably 20-35,

maybe have DP management experience, certainly have the authority and assurance to run (or seek to run) a project team, whatever the user scene. At Altergo you have positive salaries, paid over time, plus a generous travel/expenses package.

Openings are in London, Birmingham, Manchester - so you'll need to be based within striking distance of one of these centres. We're expanding fast so don't delay your letter or call.

LONDON: Sue Thomas, Altergo,
168/173 High Holborn, London WC1V 7AA. Tel: 01-379 8086.
BIRMINGHAM/MANCHESTER: Ruth Burger, Altergo,
Orbit House, Albert Street, Eccles,
Manchester, M30 0WL. Tel: (061) 707 4399.
Please quote ref. ALCW/3

altergo

Freelancers...

In the North of England and Scotland who are available now or in the near future are invited to contact me, Peter Moore, to discuss a variety of interesting contract assignments. Our current requirements include project leaders, analysts and programmers with:

- ICL VME
- HP 3000
- IBM COBOL/FORTRAN



P-E Computer Services Limited
Winchester House, Fountain Street, Manchester M2 2EF. Tel: 061-228 2776

Opportunities in Health Computing

Systems Analysts/Analyst Programmers
£8,367-£11,434 p.a. (from April 1983)

A Proficiency allowance scheme is in operation.

The Computer Unit of the Oxford Regional Health Authority is currently recruiting staff to work on a wide variety of projects which are part of an ambitious Regional Strategy for the 1980s. These include on-line hospital systems, laboratory systems, micros for GPs plus a large number of other applications aimed at improving the delivery of health care in the Region. The main equipment used is ICL (2900, ME29, 1900) and DEC PDP 11 with MUMPS.

If you are looking for a change and think you have what it takes to become a part of this team, get in touch with us now! Starting salary could be anywhere in the range quoted, depending on experience.

For further details and an application form please contact (quoting reference number V19/83):
The Recruitment Officer,
Oxford Regional Health Authority,
Old Road,
Headington,
Oxford OX3 7LF.
Telephone: Oxford 64861 Ext. 246/268.
Closing date: 11th March 1983.

Oxford Regional Health Authority

your appointments register

Programmers

NCR/IBM/COBOL to £14K
Insurance - Banking London - H. Counties - N. Eng.

COBOL/PL1/OS/CICS/IMS to £13K
Commercial H. Counties - Midlands - Manchester

HEWLETT PACKARD to £9K
Commercial Accountancy Hampshire

HONEYWELL to £12K
Systems Programming experience Middlesex

DEC/HP/WANG/DG to £12K
Basic - Cobol Berke - Surrey

IBM 4341/COBOL to £10K
Financial/Insurance W. Sussex

IBM to £16K
System exp. Essex

ICL/VMEB or K to £11K
Financial Surrey

IBM/UNIVAC/COBOL to £12K
On-line/Database Surrey

NCR 8200 to £14K
Financial SW LONDON

Analyst/Progs

BURROUGHS/COBOL to £14K
Commercial Surrey

IBM 34/38 to £15K
London/Home Counties/North

IBM/UNIVAC/ASSEMBLER to £12K
On-line/Database Surrey

HONEYWELL 64/66 to £10K
Engineering background Staffs

Hardware/Support

APPLICATIONS ENGINEER to £14K
Systems/Peripherals Based N. England

TECHNICAL SUPPORT to £13K
Pre and Post Sales Nationwide

SERVICE ENGINEERS to £10K
Nationwide

TECHNICAL AUTHORS to £ Neg.
UK + Europe

CAD/CAM/GRAPHICS to £15K
Home Counties

OPERATORS to £7K
Surrey/Berks

You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice. Take the next step in your career with us!

telephone 01 549 9236

Sloangate
The Appointments Register

SLOANGATE LIMITED
214 KINGS ROAD
KINGSTON-UPON-THAMES
SURREY KT2 5HX

Systems Analysts

IBM/ICL to £12K
Stock Control/Commodity Control London

CAD/CAM to £18K
Real time - Modelling Men - Essex - South West

IBM/BURROUGHS to £19K
Commercial Accountancy London/Surrey/Manchester

IBM to £18K
Insurance/Financial W. Sussex

ICL to £12K
Penelope Surrey

ICL 1900/2903/DME to £10K
On-line Cheshire

Software Engineers

CORAL/PASCAL/MASCOT/C to £13K
Communications Gloucestershire/Sussex/Midlands/Manchester

DEC/CORAL/PASCAL/MASCOT to £13K
Scientific/military/realtime Home Counties/Notts/South West

MILITARY SYSTEMS/RADAR to £11K
Corel - Measat Hants/Surrey - Essex - S. West

PDP/VAX/INTEL to £13K
Telecomm - ATE Surrey/London/Kent

PROCESS CONTROL/INDUSTRIAL AUTOMATION to £13K
Real Time/Petro Chemical Industries Yorkshire

HP3000/INTEL to £12K
CAD/CAM/ATE Home Counties

CAD/CAM to £12K
Military Surrey

Snr Appointments

PROJECT LEADER to £15K
Military Systems Berks/Hants

SALES EXECUTIVES to £25K
Micros - Minis - Peripherals, etc Nationwide

CONSULTANT/MILITARY/DEFENCE to £15K
DEC/VAX/RSTS Berks

SENIOR CONSULTANT to £13K
Accountancy qualifications Berkshire

PROJECT LEADER to £12K
Insurance/Financial Surrey

PROJECT MANAGERS to £15K
On-line/Database Surrey

TEAM LEADER to £13K
MVS London



Programmer/Analysts Database Specialists

£16-28,000 p.a. - New Orleans, USA

Your UNIVAC experience could bring you the rewards of the world's most technically advanced space programme...

...a better life style - a bigger challenge - the excitement of the space shuttle.

Our client, in addition to being a major, multi-industry corporation, is also the prime contractor for the external tank of the much publicised and highly successful space shuttle programme. The recent flights have been the culmination of years of design and development work conducted by experts in many fields - however, this has been only the start of a long term commitment to a totally new concept in space transportation. British Engineers have been engaged by our client for many years, and now in line with the demands of this unique project, they are also looking for a number of HNC/degree level computer professionals in the following areas:

- Programmers
- Analysts
- Programmer/Analysts
- Database Analysts
- Database Administrators

Candidates for these positions must have UNIVAC 1100 series experience. The programming is in COBOL and knowledge of some of the following software support aids, currently in use at our client's installation, would be advantageous.

DMS 1100, DDL, SDDL, DMU, DML, QLP, DPS 1100, TIP, D/B Editor

The major applications include:—
Manufacturing, Scheduling, Inventory, Production Control, Configuration Management and Purchasing.

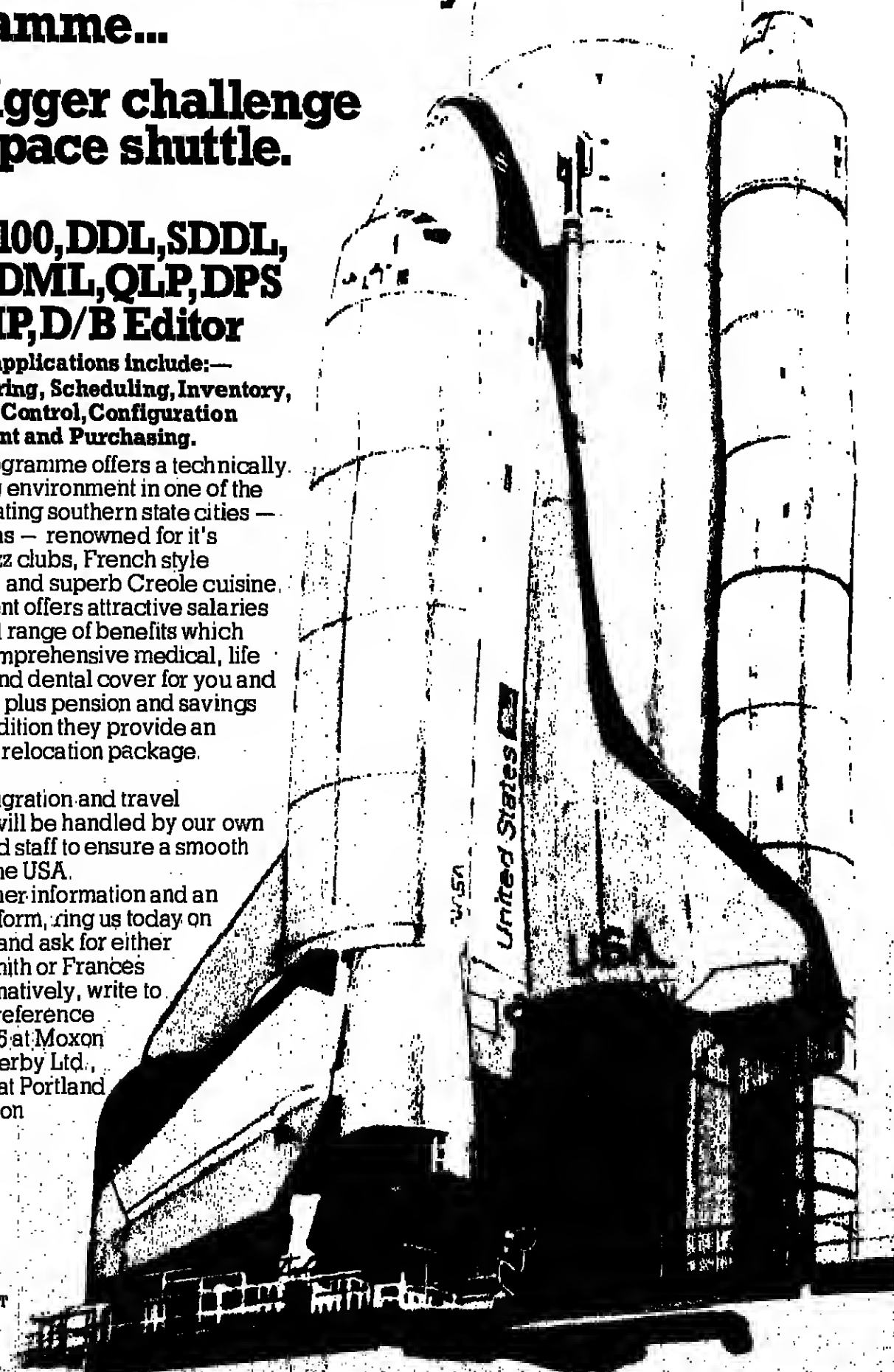
The programme offers a technically challenging environment in one of the most fascinating southern state cities - New Orleans - renowned for its nightlife, jazz clubs, French style atmosphere and superb Creole cuisine.

Our client offers attractive salaries and a broad range of benefits which includes comprehensive medical, life insurance and dental cover for you and your family, plus pension and savings plans. In addition they provide an outstanding relocation package.

All immigration and travel formalities will be handled by our own experienced staff to ensure a smooth transfer to the USA.

For further information and an application form, ring us today on 01-631 4411 and ask for either John Goldsmith or Frances Allen. Alternatively, write to us, quoting reference number 3085 at Moxon Dolphin & Kerby Ltd., 178-202 Great Portland Street, London W1N 5TB.

MOXON DOLPHIN & KERBY LTD
INTERNATIONAL RECRUITMENT



CONTRACTORS

JOIN A WINNING TEAM

IBM

IBM OS/MVS PL/1 IMS DB/DC
IBM MVS
IBM MVS CICS
IBM 8100 DPPX
IBM 8100 DPCX MACRO ASSEMBLER
IBM 4341 CDBOL CICS DL/1 COPICS
IBM DOS/VSE PL/1 DL/1 CICS
IBM IMS ABS CDBOL
IBM IMS DB/DC COBOL

ANALYST/PROGRAMMERS
SYSTEMS PROGRAMMERS
PROGRAMMERS
SOFTWARE SUPPORT SPECIALIST
PROGRAMMERS
ANALYST/PROGRAMMERS
SENIOR PROGRAMMER
PROGRAMMERS
ANALYSTS/PROGRAMMERS

ANALYSTS

TOTAL OR ANY DATABASE
DL/1 DATABASE ADMIN
BURROUGHS CORAL 66 PRDG

ANALYSTS
VERY URGENT

OTHERS

MOTOROLA 6809 ASSEMBLER
PRIME TOTAL COBOL
MOTOROLA 68000 PASCAL
MOTOROLA 68000 DEVICE/DISK DRIVER
HP3000 IMAGE/VIEW/QUERY COBOL
DL/1 DATABASE ADMINISTRATOR
BURROUGHS CMS RJE/SYCDM GEMCDS NDL/MPL

SOFTWARE ENGINEERS
PROGRAMMER
PROGRAMMER
PROGRAMMER
PROGRAMMER
SYSTEMS/PROGRAMMER

ICL

ICL 2900 EXEC CDBOL MTS
ICL 1900 CDBOL + DRIVER
ICL 2900 GEORGE 3 (+/-VME) CDBOL

PROGRAMMER
TECHNICAL DESIGNERS

ICL 2900 VME CDBOL
ICL 2900 GEORGE 3 DRIVER CDBOL
ICL 2900 VME + IDMS SENIOR ANALYST/PROJECT LEADER
ICL 2900 VME IDMS TPMS COBOL
ICL 2900 IDMS + SCL COBOL
ICL ME29 TME IDMS MTS

ANALYST/PROGRAMMER
ANALYST/PROGRAMMER
PROGRAMMER
PROGRAMMERS
ANALYST PROGRAMMERS

NOW AND APRIL

2900 IDMS TPMS PROGRAMMERS

MARCH ONWARDS

4341 CICS DL/1 COPICS ANALYST/PROGRAMMERS

We have urgent requirements for contractors in both these fields; in various locations. All are minimum 6 months contracts

A Computer Search Contract starts by calling Debbie on (0442) 40761.

Computer Search (Contract) Ltd.,
Hendon House, Marlowes,
Rimel Hempstead, Herts. HP1 1BB.
(0442) 40761

Computer
Search
Contracts

SMR

Sales & Marketing Recruiters Ltd

A Sales & Marketing Recruiters Company

SALES EXECUTIVES CONSULT THE CAREER DEVELOPMENT SPECIALISTS

When you are dealing with the major factors in your life you can only afford the best, and low things are more important than the development of your career. Certainly, that is how the major computer manufacturers feel about their personnel selection and why such companies as CONTROL DATA, COMPUTER TECHNOLOGY, DATA GENERAL, HONEYWELL, PERKIN ELMER, RECFUSION, SPERRY UNIVAC and many others continually use our organisation for the recruitment of experienced sales people.

We fully understand the needs of such companies as well as knowing about the many facilities that they never appear in the press. These well respected norms depend on our professional skills and confidentiality. Can you afford less?

Contact: Alan Williams, Peter Hubble
Allison Scott or Roger Dodd - ANY TIME! (0308)

LONDON & SOUTH MIDLANDS & NORTH

25 Oxford Street, London W1 0EJ
25 Oxford Street, London W1 0EJ

COMPUTER SALES EXECUTIVES

£16,000 and EXCELLENT COMMISSION
(UNLIMITED)
PLUS CAR AND OTHER BENEFITS

Our clients will be interested in talking with you if you have a successful selling record and a working knowledge of some of the following:

Mini/Mainframes
Distributive Processing Systems
Communications
OEM Sales
Word Processing

In return you will be offered the opportunity to use your professional skills in an exciting environment with unlimited earning potential. In the first instance telephone Cambridge (0278) 32888 (office hours) or Farnborough (0252) 518978, to 10 p.m.

COMPUTER CONSUMER ADVICE
BUREAU LTD.
Computer and Recruitment
Consultants
5 Green Lane, Blackwater
Near Camberley, Surrey

CCAB

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

1349

SALES BIT Quality of Management - 41 Failure to recruit staff can be costly

JANUARY and February are usually fairly depressing months. It is not merely because they typically provide the worst weather, it is also because for most sales managers, and salesmen too, it is the time when they become "Yesterday's Heroes", and no matter how successful they were last year, have to prove their capability all over again.

It is also a time when sales managers begin to realise the implications of failing to complete the sales recruitment process before the start of a new selling year. Perhaps they were so busy closing "last minute" business in the hope of achieving last year's targets that next year appeared not to exist. But it is here now, and with it the reality of having an incomplete sales team that is obliged to achieve a sales target that does not take into account manpower shortages - or even the pound's depreciation against the dollar.

It is also at this point in the proceedings that the learning curve between the arrival of a new recruit and the likely achievement of his first sales success is seen in its true and extended light. After all, you cannot expect a new recruit to close anything other than "bluebirds" in that interim period that consists of the basic training period plus the length of the average "selling cycle".

I recall an occasion one September when my company, Sales and Marketing Recruiters, carried out a recruitment assignment for a major computer manufacturer. The advertising campaign was successful and after the preliminary interviews had been completed we had a good shortlist of appropriate candidates.

The company's senior management was satisfied with both the volume of applicants and the quality of a cross-section of candidates they met. Consequently, responsibility for processing the applicants was quickly passed to branch sales management.

However, by this time it was October and the pressure was also beginning to build up for the salesforce to close a number of significant deals before the end of the sales year and as a result recruitment was given a relatively low priority.

Time went on, the candidates became restless, and several of them changed their minds or decided to take alternative offers of employment. Then the company decided to re-organise, which created considerable uncertainty about the size and organisation of teams.

More time passed and other candidates decided that the lack of progress was some measure of the management's decisiveness, or simply decided to stay put or accepted offers elsewhere. Suddenly, and without negotiation by senior management, the branch sales managers began to rush around asking for interviews to be set up; but by then it was nearly too late. The better candidates were mainly gone and those that remained had lost considerable confidence in the company, or at least its management.

COURSES

■ **TRAINEE** programmers with basic language training and initial programming experience may find useful a course run by BIS Applied Systems. Improving Programmer Productivity is a practical workshop for those who need to increase their effectiveness and productivity.

The course is non-residential. It will be held on March 29 and 30 at the Henry VIII Hotel in London and the fee is £260 + VAT. Further details from the organisers at York House, 139 Westminster Bridge Road, London SE1 7UP, or phone Gerry Morgan on 01-261 8237.

■ **PUZZLE ANSWER**
THE triangle has an 8cm side, and the point lies on the left-hand perimeter. The puzzle is based on the smallest integer solution to $3(a^2 + b^2 + c^2 + d^2) = (a^2 + b^2 + c^2 + d^2)^2$. This remarkable equation provides a means of finding the side dimension of any equilateral triangle, when given the distance of a point from its three corners (even if the point is actually outside the triangle). Any three of the values can be taken as the three distances, and the fourth will then be the side dimension.

"Our commitment to the use of computers is evidenced by the fact that we had computer terminals in our offices before we wrote our first policy. Now, our continued growth depends on the broader application of advanced information technology." - David Whitney, Manager, Management Services.

Lloyd's Life Assurance Ltd. is the insurance company formed in 1971 by Lloyd's of London, probably the best-known insurance institution in the world.

Effective information processing has been a major factor in the success of the company. A commitment to growth underlines the need for continuing systems development. Integration of computer networks, expansion of office automation and development of improved computer systems are essential to the achievement of the company's objectives.

Lloyd's Life now wish to recruit high calibre professionals with an IBM COBOL background to work within their Management Services Department. Success in this rapidly changing environment depends only on the ability to achieve results.

An IBM 4341 runs under VM, CMS, DOS/VSE, CICS and DL/1. In addition several TI 990/12 minis provide both stand-alone application support and mainframe communications facilities.

The User Support group is responsible for ensuring that user departments achieve the most effective use of computerised systems. The range of work undertaken is considerable - from design consultancy on new systems to troubleshooting and support for live systems. Members of the team are likely to be motivated by achieving results. Broad technical competence with an ability to relate to the needs of computer users are fundamental to these positions.

Lead Analyst/Programmer to £13,000 + benefits

An experienced Analyst/Programmer who will lead a small team responsible for all aspects of applications support of implemented systems and provide consultation on new system developments. Extensive data processing experience and an ability to motivate a team are particularly important.

Analyst/Programmer to £11,000 + benefits

An experienced Analyst/Programmer or Customer Support person who will be given responsibility for the total support of one or more users.

Systems Development

System developments are undertaken by project teams. Members of these teams are Analyst/Programmers who combine a flexibility of approach with a breadth of technical and systems skills. They may be involved in any aspect of development - from system specification and data analysis to program development and implementation.

The expanding development programme has resulted in two vacancies within these project teams.

Lead Analyst/Programmer to £13,000 + benefits

An experienced Analyst/Programmer who will lead a small team involved with the development of new systems. A good knowledge of COBOL in an IBM environment, together with experience of on-line system design is essential. Experience of team leadership, database, financial or insurance applications will be of particular interest.

Analyst/Programmer to £11,000 + benefits

An experienced Analyst/Programmer, or Programmer with significant user exposure, is required. Technical experience would ideally include CICS programming.

Each of these positions offers a benefits package which includes:

- ★ Salary related to performance
- ★ Profit sharing
- ★ Share participation
- ★ Permanent health scheme
- ★ Group life scheme
- ★ Flexible working hours (35 hrs./wk.)
- ★ Lunch on vouchers
- ★ Non-contributory pension scheme
- ★ 4-6 weeks' leave dependent on seniority and length of service
- ★ Season-ticket loan scheme

EiGER
Management Limited

77 Watney Road, Croydon CR9 2AJ
01-681 7748/2141

An ethical service from practising computing consultants

MANAGEMENT & EXECUTIVE SELECTION

telephone
01-637 9611

How long have you waited
for a 'fast lane' sales
opportunity?

Well wait no longer.
Here is your chance to
make it happen

How?
By joining one of the
world's leading peripherals
manufacturers as a
TERRITORY SALES MANAGER

If you live in the North or South, have ambition,
a good sales track record and earnings more
than £15K, pick up the telephone and convince
us why you should be on our short-list. Talk to
Barbara Basquill.

Suite 201/6 Albany House
324 Regent Street London W1

MANAGEMENT &
EXECUTIVE SELECTION

TOP OPPORTUNITY FOR EXPERIENCED UNIX/C SYSTEM PROGRAMMER

Comp. science graduate, with at least two years' proven track record in an installation with UNIX source licence, working experience with YACC and LEX and special interest in code generators.

Long-term assignment with top remuneration (10-20k), based on experience and performance. Possibility of opening a branch office in the UK.

Please apply with full c.v. to our Mr Harold H. Bachmann, or call at:
Alkon Ltd., Flustr. 93, CH-8047 Zurich, Switzerland. Telephone: 1-493 1010, TX 822411.

Computational Mechanics

COMPUTER AIDED DESIGN

We are a rapidly expanding company based in the New Forest and involved in the development and supply of CAD and analysis packages for engineering users.

We are currently seeking to fill two positions:

SOFTWARE SALES
To meet the increasing demand for our engineering software we wish to hear from highly motivated sales engineers who have a proven track record of selling technical products. He/she will be responsible for developing the company's marketing strategy.

CAD SOFTWARE ENGINEER
Candidates should be experienced in the development of CAD software. A knowledge of the Finite Element Method and engineering analysis software would be an advantage. The preferred experience is 2 to 3 years.

Excellent prospects for promotion. Salaries will be commensurate with experience.

Please apply to Dr. J. D. Dutton and include a c.v.
Computational Mechanics Centre, Ashurst Lodge,
Ashurst, Southampton SO4 2AA.
Tel: 042 225 222

ANALYST/ PROGRAMMER (RPGII)

Circa £10,000.

Crawley
A vacancy has arisen for an ANALYST/PROGRAMMER to join the small friendly Data Processing team at our modern pharmaceutical plant and offices in CRAWLEY. This is an ideal opportunity for an enthusiastic and ambitious Programmer to develop existing design and analysis skills.

Applicants should have at least two years experience of IBM System/34 and/or RPG II. Please apply to: The Personnel Officer, UPJOHN LIMITED, Fleming Way, CRAWLEY, West Sussex. Tel No (0293) 31133.

Upjohn

MIDLANDS RECRUITMENT FEATURE

3rd MARCH 1983

Next week we are running a recruitment feature on the Midlands area, with full editorial support.

To book space please contact:

VIC SHERET - BIRMINGHAM
021-356 4838

SHEONA NORRIS - LONDON
01-661 8080

UNIVAC 1100 SPECIALISTS
Major international company requires UNIVAC 1100 Specialists prepared to work on a variety of assignments at home and overseas.
Ref: C9890

PL1 & COBOL PROGRAMMERS to PROJECT LEADERS
Our clients, situated in London, Home Counties and Sussex need Programmers to Project Leader level with PL1 or COBOL experience to develop real time commercial systems, including Banking, using CICS and DL1. Knowledge of CICS on advantage. Benefits include BONUS scheme, MORTGAGE and insurance facilities.
Ref: C9897

TWO PROJECT LEADERS
Two Major international companies require professionals with five to six years' D.P. experience, ideally with an IBM background, to lead a small development team in DOS/VS and MVS environments. The successful applicants must have sound managerial/leadership qualities rather than specific hardware knowledge.
Ref: A9897

BASIC PROGRAMMERS to PROJECT LEADERS
A number of clients in London/Home Counties are seeking Programmers and Systems Programmers to Project Leader level with a sound knowledge of BASIC or BASIC+2, under DEC RSTS/E, RSX11 or VAX/VMS, to work on a wide variety of real time scientific and commercial systems including Banking. Vacancies also exist for MINI/MICRO specialists.
Ref: C9799

RPG2/3 SPECIALISTS to DPM level
A number of our clients situated in London/Home Counties and Southern England need Programmers and Analysts with two years' RPG2 end/or RPG3 experience, preferably on System 34 and/or System 38. A wide variety of commercial systems include International Banking where opportunities exist for training on RPG3, if required. Benefits include subsidised MORTGAGE scheme and PROFIT SHARE.
Ref: C9790

PROGRAMMERS to SENIOR ANALYST level
We have been retained by an international organization who needs experienced systems and programming personnel to develop a wide variety of commercial applications. Applicants must have a sound knowledge of COBOL, preferably in a DOS/VS, CICS/DL1 environment, with a bias towards manufacturing systems. Excellent benefits.
Ref: A9894

SYSTEMS PROGRAMMERS
Six of our clients need BSL Systems Programmers to take responsibility for a wide variety of systems software, from DOS/VS to MVS sites. A knowledge of CICS/DL1 would be useful. Excellent fringe benefits. RELOCATION package applies only to a Sussex site.
Ref: A9891

SENIOR ANALYSTS
Major ICL User needs Analysts to take leading roles in the development of a variety of commercial applications. Successful applicants should possess leadership qualities, together with an ICL COBOL background. Knowledge of TP and/or IDMS useful.
Ref: C9893

HP 3000 SPECIALISTS
We have received vacancies for Programmers and Analysts/Programmers to Project Leader level with a minimum of two years' COBOL experience, ideally in an interactive HEWLETT PACKARD 3000 environment. Excellent benefits include PROFIT SHARE, BONUS, BUPA, share, purchase schemes, etc.
Ref: D9898

SYSTEMS ANALYST/DEPUTY OPM
This expanding international organization is seeking someone to act as deputy to the O.P. Manager in a busy IBM System/36 and 38 site. The successful applicant will have sound commercial design experience, plus ability of communicating with Users at all levels. A knowledge of RPG3 would be an advantage, but formal training will be given.
Ref: C9894

ICL PROGRAMMERS & ANALYSTS
A number of VME/B clients based in London, Surrey, Middlesex and Sussex need development and technical support staff with a minimum of two years' ICL COBOL experience. Knowledge of IOMS is an advantage although training will be given.
Ref: C9894

DEC PROGRAMMERS
Our client needs two Programmers with two years' COBOL experience to assist in the development of applications on their recently installed DEC/VAX machine under VMS. Benefits include free exotic holidays abroad!
Ref: A9905

SYSTEMS ANALYST
Our Client, a leading manufacturing organization needs an Analyst with a minimum of two years' commercial design experience to assist in the development of a wide variety of application areas. A knowledge of CICS and DL1 would be an advantage. Excellent benefits include a RELOCATION package, where appropriate.
Ref: D9899

PL1 PROGRAMMERS (ANALYSTS)
Two leading manufacturing companies have vacancies for Programmers and Programmer/Analysts with a minimum of 12 months' PL1, CICS/DL1 or IMS experience. RELOCATION expenses are paid, where appropriate, together with associated large company benefits.
Ref: D9899

BAL PROGRAMMERS
Two major Banking and Software organizations need ASSEMBLER Programmers to take leading roles in the development and conversion of various special systems and modules. A knowledge of COBOL would be useful. These positions could lead to advancement into systems programming using CICS, plus other spheres of the business operations.
Ref: C9890

DEC PROGRAMMER
Unique opportunity for someone with good communicative skills and a working knowledge of RSTS/E and BASIC+2, to be solely responsible for running of a 11/70 installation. Excellent conditions of employment are offered.
Ref: B9891

NEAT 3 PROGRAMMER
Large manufacturing company needs someone with at least two years' NEAT 3 experience for their NCR 5485 installation. A knowledge of on-line programming is an advantage. Excellent company benefits apply.
Ref: B9890

FORTAN SPECIALISTS
Programmers are required to join existing development teams to work on a wide variety of applications including scientific, research, engineering and commercial projects. Excellent benefits include annual BONUS/PROFIT SHARE, B.Sc. 2/1/2/2 Graduate for junior levels.
Ref: C9942

BUICK COMPUTER SERVICES

72 Rochester Row
Victoria London SW1P 1JU

Tel: 01-834 0061 (24-hours)

Or call evenings and weekends
REF. A: 01-316 2700
REF. B: 01-794 5957
REF. C: 01-942 1176
REF. D: 01-943 0149

NAME _____
ADDRESS _____
Ref. No(s): _____ Home Tel: _____

RPG2/3 ANALYST/PROGRAMMER
This leading manufacturing organisation requires someone with a minimum of two years' RPG2 and/or RPG3 experience. This position would suit someone wishing to be trained in RPG2, who is appropriate.
Ref: C9891

ICL PROGRAMMERS & ANALYSTS
(NEW BITE)
Our clients, a leading manufacturing company, have recently installed their first computer, an ICL 2960, and are consequently seeking Programmers and Analysts with VME/B COBOL experience. IOMS/Database (TPS) knowledge would be useful. Excellent career paths and conditions of employment apply.
Ref: B9891

SYSTEMS ANALYSTS
Two large construction companies are both seeking Analysts with a sound COBOL programming background, to develop systems on the ICL ME29. The successful applicants will be responsible for supervising a small team of programming staff on varied applications.
Ref: A9895

ANALYST/PROGRAMMERS
This large publishing company are looking for people who want to develop their skills within a progressive D.P. environment. A working knowledge of COBOL is essential, preferably in a DOS/VS, CICS environment. Excellent prospects and benefits package is offered.
Ref: A9892

JUNIOR ANALYST
Major Software organisation need a Junior Analyst with a good financial or general commercial background, capable of handling bespoke systems in a MINI/MICRO environment. Programming knowledge may be useful, but not essential.
Ref: C9897

PROGRAMMERS & ANALYSTS/PROGRAMMERS
(ANY MAINFRAME)
This service company has vacancies for personnel with a minimum of 12 months' COBOL experience, to undertake development of new applications using OEC VAX kit in a DBMS environment. Previous DEC experience an advantage, but not essential. Excellent fringe benefits.
Ref: D9898

RPG2 to RPG3 PROGRAMMER
Leading insurance company needs a Programmer with either RPG2 or RPG3. Full training will be given on their System 38 Site. A well-structured career path and excellent monetary benefits apply.
Ref: B9904

ICL PROGRAMMERS
Leading financial organisation based in N Surrey require experienced Programmers with at least 18 months' COBOL. Knowledge of IOMS would be useful. MORTGAGE, BUPA scheme, and many other benefits are offered.
Ref: C9896

JUNIOR BAL PROGRAMMER (One year)
This financial organisation wishes to recruit someone with approximately one year's ASSEMBLER experience gained in an IBM environment. Excellent monetary benefits apply.
Ref: B9890

OOS SENIOR OPERATOR
This international company requires someone with a minimum of two years' sound technical experience in OOS/VS, CICS and VTAM. Benefits include MORTGAGE facilities, etc.
Ref: C9898

MVS OPERATORS
Two leading organisations require Operators to Shift Leader level with MVS/JES2 experience to complement their expanding team structures. Excellent prospects and benefits apply.
Ref: C9893

IBM SHIFT LEADER
A minimum of three years' OOS/VS experience coupled with good supervisory skills are essential for this TWO-SHIFT environment. Excellent modern working conditions and benefits apply.
Ref: B9876

IBM SHIFT LEADER
Financial organisation requires someone with OS/VS1 or VM experience capable of taking charge of a shift in an IBM 4300 environment. Benefits include MORTGAGE scheme, BUPA, etc.
Ref: C9879

ICL OPERATORS
Retailing group requires experienced VME/B Operators with at least two years' background. Excellent modern working conditions apply, together with full relocation costs paid, where applicable.
Ref: B9901

DEC SHIFT LEADER (Two shifts)
Ideally, the successful applicant should have three years' RSX 11/VMS experience. Familiarity with VAX 760/780 machines would be desirable. An extremely generous shift allowance is offered making the financial package very rewarding.
Ref: B9893

IBM OPERATORS
This financial organisation need two Operators with OOS/VS, VM expertise. Benefits include MORTGAGE subsidy, monetary loans, etc.
Ref: B9879

IBM OPERATORS
Our client is relocating to NEWBURY later this year and are wishing to recruit experienced DOS/VS Operators. Initially all travel costs to their present site in Bury will be paid. DAYS ONLY.
Ref: B9896

DATA CONTROL CLERKS
(ANY MAINFRAME)
A leading international organisation is seeking two Data Controllers with a minimum of two years' experience. These positions are FLEXI-DAY hours only with the occasional overtime.
Ref: C9892

ICL OPERATORS
Our client, a large Bureau, need Operators with 18 months' DME/GEORGE 2 experience. The site operates a three shift system and offers plenty of overtime, benefits etc.
Ref: B9890

HONEYWELL OPERATOR
Client requires someone with a minimum of six months' GCOS experience to work a TWO-SHIFT system in a HONEYWELL level 89 environment. Excellent career prospects and company benefits.
Ref: A9828

ASSOCIATES

FINANCIAL MODELLING CONSULTANTS

Our client is one of the most successful and profitable international computer service organisations in the UK. They offer a full range of services to management, including financial and corporate planning. Their success is based on a continuing philosophy of recruiting expert committed staff in key market disciplines, and their enviable reputation for product innovation. In order to enhance the excellent pre- and post-sales support that they provide, they now seek two professionals with experience of Financial Modelling for the positions of:

CONSULTANT

up to 10K

- ★ Ideally you will have a degree
- ★ You will currently be working with financial modelling packages, either as a user or in a support role.
- ★ You will have good communicative skills, both written and verbal.
- ★ You can work well under little supervision and have a good understanding of business operations.

SENIOR CONSULTANT

up to 12K

- ★ You should have a degree, plus three years' computing experience.
- ★ You will have experience in sales support for a software house, bureau, or manufacturer.
- ★ Or, you will have used a financial modelling system (preferably FCS-EPS) in a senior role in a user organisation.
- ★ You are looking for an opportunity to gain project management experience on a variety of applications.

These positions are based in Central London. If you enjoy variety and challenge and are interested in a positive career progression, telephone HUGO FAIR on 01-828 2416 or write enclosing a brief résumé (quoting Ref: HF/101)

205 VICTORIA STREET, LONDON SW1E 5NE.
TELEPHONE: 01-828 1574/1327

Analyst Programmers

up to £13,000

The Water Research Centre has three laboratories; one at Swindon, Wiltshire, another at Medmenham, Bucks and a third at Stevenage, Herts. WRC, with a total staff of 500, is the national centre for water research in the United Kingdom and is one of the largest water research organisations in the world. It is financed principally by the Regional Water Authorities, the Water Undertakings and the Department of the Environment.

We are setting up a new team to work on systems of the future incorporating all aspects of information technology, and have vacancies for a number of Analyst Programmers at WRC Engineering in Swindon.

Candidates should hold a degree in Computer Science or equivalent, and have several years' experience in one or more of the following areas: DATABASE, GRAPHICS, OR COMMUNICATIONS. The successful candidates will be experienced in the application of the latest hardware technology and software techniques, and will have the ability to work with minimal supervision.

WRC runs a network of VAX computers and has a progressive computing policy to support its research projects, management information systems and text processing.

Conditions of employment include a contributory pension scheme and assistance with relocation expenses where applicable. Applications in writing, giving full details, quoting post no. 392, to: Mrs E. Bunting, Personnel, WRC Engineering, PO Box 85, Swindon, SN5 8YR.

Closing date: 11 March 1983.

RESEARCH ASSISTANT

(General Administrative Grade)

Required for newly created post. Work involves computer surveys of Health Services provided by the Authority and assisting in the development of information systems.

Candidates must be fully conversant in computer technology and have knowledge of information systems. Post is for an initial two-year period. Commencing salary £5,429 p.a.

Informal enquiries to Dr J. M. Bainbridge, District Medical Officer, Tel: Darlington 60100 Ext. 3082.

Application form and job description from Personnel Department, Memorial Hospital, Darlington, Co. Durham. Closing date for completed applications 7th March, 1983.

DARLINGTON
HEALTH AUTHORITY

UNIVERSITY OF BIRMINGHAM

DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

COMPUTER OFFICER

Applications invited for post of analyst/programmer to work with the departmental PDP11 machines on wide range of research and teaching activities and to interface with microprocessor systems, mini computers and University mainframes. Experience with UNIX desirable.

Salary on the Computer Officer scale, £5,550-£9,370-£11,105 plus superannuation. Starting salary will depend on age, qualifications and experience.

No formal application form. Three copies of application, including full Curriculum Vitae and naming three referees to Assistant Registrar, Sciences and Engineering, P.O. Box 363, Birmingham B15 2TT, by 11th March, 1983.

CROSSWORD

Solution to Prize Crossword No. 37

L	E	G	S	H	O	W	R	E	A	R	S	U	P
E	R	O	I	O	R	O							
T	H	E	R	M	I	D	E	M	A	R	K	S	
U	K	E	H	O	Y	E	N	T					
P	R	I	K	E	S	T	A	F	F	S	A	N	I
S	S	T	I	F	E	U							
			E	M	B	A	R	R	A	S	S	E	D
D	O	A	O	T	S	E							
I	M	P	E	D	I	M	E	N	T	A			
S	E	S	B	L	P	H							
S	A	N	E	L	A	S	T	M	I	N	U	T	E
E	I	F	R	O	S	R	A						
C	O	N	C	O	R	D	A	T	E	P	A	P	E
T	G	C	L	E	E	I	L	T					
S	U	S	P	E	N	D							

THIS month's £10 prizewinner is Derek Harrison, director of Yorkshire Computer Services in Bradford. Prizes of £5 each go to Nick London, an analyst/programmer with the Office of Population Censuses and Surveys in Kent, and to Chris Clark, who is a program support representative with IBM in Chiswick.

Contractors

Resulting from our continuous marketing campaign we will always have contractors available that you are unaware of.

The chances are that we will know of a job to suit you in your area, if not now, then certainly in the near future.

Give yourself the opportunity to consider these contracts. Contact Roger Radford or Richard Jones on 021-643 4700. Telex: 337045.

K Compuhire

Temple House
43-48 New Street, Birmingham B2 4JH
Tel: 021-643 4700 Telex: 337045
Licensed by the U.K. as an Employment Business (M1337)

WRC

Handwritten signature/initials